Mining

Accidents

1978
Six killed in mine accident

Six mineworkers — four blacks and two whites — were killed in an underground accident at Vierfontein Colliery, near Orksney, last night.

The accident occurred at about 9.30 pm at Vierfontein's south-east shaft, some 80 metres below surface.

Shiftboss Mr W J Botha and miner Mr S J Smith were supervising a normal practice of withdrawing timber supports when a roof fall occurred. Both were married and lived at Vierfontein.

The names of the black mineworkers are being withheld until their next of kin have been told of the deaths.

Vierfontein Colliery supplies coal to the Vierfontein power station and employs some 2,200 workers of whom about 700 were on last night's shift when the accident occurred.
Six miners killed

Six miners were killed and 18 others were rescued by a rockfall at the Motoe Mining Buffalo-Corbet Gold Mine near St. Thomas yesterday.

Rescue operations were completed last night, a spokesman for the Motoe Mining and Finance Corporation said today. It said the rockfall was caused by a small earth tremor.
Mud kills workers

PRETORIA: Two mineworkers have died in an underground mud rush in Cullinan's Premier mine. They were working 300 m underground early on Wednesday when they were engulfed by mud and rubble.
Negligence caused Modder death blast

Two operators at the Modderfontein dynamite factory have been blamed for the January explosion in which two men died and 38 others were injured.

The men are Mr. J. J. Bester, operator in charge of Nitration House A1, and Mr. N. J. Oosthuizen, relief operator.

Mr. Bester died in the explosion and Mr. Oosthuizen has been dismissed by AECI, the plant owners.

A commission of inquiry into the blast released its findings in Johannesburg today.

It found that Mr. Bester and Mr. Oosthuizen deviated from normal procedures and contravened two rules of the Explosives Act.

**CAUSE**

They transferred (or allowed to be transferred) glycerine to the glycerine box above the nitration, while a charge was running from the nitration, and closed (or allowed to be closed) the drawing tap of the glycerine distributor long before the next nitration was due to begin.

As a result, it was possible for glycerine to enter No 1 Separator via the nitration, causing the explosion.

The explosion on January 7 was heard more than 20 km away. It destroyed Nitration House A1 and severely damaged neighbouring buildings.

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**FOR DECISION**

The findings of the commission have been referred to the Attorney-General, who will decide whether to prosecute, Mr. H. van Dijk, Commissioner and Deputy Chief Inspector of Explosives, said today:

A spokesman for AECI at Modderfontein said procedures were strictly laid down and if these had been followed the explosion would not have happened.

"The finding illustrates this point clearly," he said.

"On-going training continues at the plant and residents in the area can be assured every precaution is taken. The fact that there have been two explosions within four months does not cancel out our good safety record over a long period."
Five killed in Reef gold mines

JOHANNESBURG — Four Black underground workers were killed and 10 were missing, presumed trapped under fallen rock, after a pressure burst at the Doornfontein gold mine near Carletonville yesterday, a mine spokesman said.

The burst occurred at 8 a.m. at a stop 1,800 m deep near the mine's number 1A sub-vertical shaft.

Eighty-six underground workers who were engaged in the accident were admitted to Lenasia Williams Memorial Hospital near Carletonville.

Rescue operations were continuing, the spokesman said.

In another mining accident yesterday, a 32-year-old shift foreman, Mr. Willem van Rooyen, was fatally injured at the West Rand Consolidated gold mine in Kuyasa Kop after falling about 20 m in A Section of the Monarch shaft.

Mr. van Rooyen was inspecting a plumb line in the shaft that goes to level 28 when he fell. He died instantly.

A widow, Mr. van Rooyen leaves a son. — (Cape)
Trapped in mine

JOHANNESBURG.—Only seven or eight miners are now believed trapped two kilometres underground after yesterday’s pressure burst at the Doornfontein gold mine near Carletonville.

It is impossible to give an estimate of when we will reach the trapped men, but we have a fair idea of where they are, a spokesman for Gold Fields, the mining house which administers the mine, said today.

Originally it was thought 12 miners were trapped, but the spokesman said today it had been determined that seven were trapped and possibly an eighth man.

Head count

A full head count of miners was being made to determine where the eighth man was.

Five men were killed in the rock burst and 38 injured. Rescue work is going on non-stop.

Mr. Albino Zavila, a team leader, said today the working area had collapsed around his feet without warning.

“When this came down, I was buried under the rubble,” he said.

“I was not afraid, but if I had to die, I would have had to go.

Conscious

Mr. Zavila said that he was not long underground and was conscious. His left leg was injured.

This was his first accident in six years of working in mines. He is married, with two children.

Mr. Thomas Vatsenga, 25, a lighting aid, said that he was underground when suddenly the area collapsed around him. There were five in his team.

He has a leg injury and is now recovering at Leslie Williams Memorial Hospital near Carletonville.
Desperate bid to dig out miners

Labour Reporter

Rescue workers are struggling to reach 10 men trapped almost 2 km underground after a pressure burst which killed eight of their colleagues and injured 38 more in the Doornfontein Gold Mine near Carletonville yesterday.

"There is hope that at least some of the 10 missing men are still alive," said a spokesman for Gold Fields, the mining house which administers the mine.

The injured are in a serious condition in the Leslie Williams Memorial Hospital, serving Gold Fields mines around Carletonville.

One of these reached the surface at about 2 am today. At 3 am the rescue teams freed the body of a dead miner.

All the dead, injured and trapped men are black miners who were at work in two panels covering about 60 m of working face, 1603 m under the surface near the mine's No 1A subvertical shaft.

**SMALL BURST**

They were busy with "early starting" preparatory work, awaiting the arrival of their supervisors.

A small burst, which apparently did little damage, occurred at about 7 am and was followed by the severe burst at 8 am which caused the disaster.

The tremor was felt on the surface.

More than 50 of the workers escaped unharmed.

Those still trapped are difficult to reach because the working areas are only about 1 m high and the clearing work has to be done manually.

The mine has not yet compiled a list of identities of the injured men. The names of the dead are being withheld pending notification of their next of kin.
8 men still trapped in mine

SEVEN or eight miners are still believed trapped 2 km underground after Friday's pressure burst at the Doornfontein gold mine near Carletonville.

"It is impossible to give an estimate of when we will reach the trapped men but we have a fair idea of where they are," a spokesman for Gold Fields, the mining house which administers the mine, said yesterday.

Originally it was thought 12 miners were trapped.

Five men were killed in the rock burst and 38 injured. Rescue work is going on non-stop. — Sapa
Stryd om
RAPPORT 26/2/178
myners (212)
te red

REDDINGSPANNE werk strykdur om die sewe swart mynwerkere, wat sedert 'n drukbars gister by die Doornfontein-goudmyn nab Carletonville 2 km ondergronds vasgekeer is, te bereik. Vf swartes is in die drukbars dood en 38 beseer.

"Die reddingspoging vorder na weense, maar ons kan nie sê wanneer die vasgekeerde dee bereik sal word nie," het 'n voorhoedere van die myn gistermiddag laat gesê.
8 men still trapped in mine

SEVEN or eight miners are still believed trapped 2 km underground after Friday’s pressure burst at the Doornfontein gold mine near Carletonville.

"It is impossible to give an estimate of when we will reach the trapped men but we have a fairly good idea of where they are," a spokesman for Gold Fields, the mining house which administers the mine, said yesterday.

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Five men were killed in the rock burst and 38 injured. Rescue work is going on non-stop.
SEVEN men were still missing late last night in the mine disaster at Doornfontein which claimed the lives of five miners early on Friday morning.

A mine spokesman said rescue work would continue but no change in the situation was expected overnight.
7 still trapped in mine

JOHANNESBURG — Rescue workers are still trying to reach seven miners trapped underground after a burst at the Doornfontein gold mine near Carletonville. Five miners were killed and 38 injured in the burst on Friday morning. About 50 escaped.
Mine death toll rises

JOHANNESBURG — The bodies of two mineworkers were brought to the surface at the Doornfontein gold mine near Carletonville yesterday, bringing the death toll in the accident on Friday to seven.

A mine spokesman said last night five mineworkers were still trapped.

Rescue operations were proceeding on a round-the-clock basis.

The spokesman said rescue workers had managed to open up the gulleys leading to the area where the "strain-burst" had occurred, making the area more accessible and speeding up rescue operations. — SAPA.
Mercury Correspondent

JOHANNESBURG — Rescue workers were yesterday still battling to reach seven miners trapped underground after a rock-burst at the Doornfontein gold mine near Carletonville.

Five miners were killed and 38 injured when the burst occurred in a stope 1,935m deep near the mine's Number 1A sub-vertical shaft early on Friday. About 50 escaped with only bruises and scratches.

All the victims are Black and no names have been released.
Rescue workers battle on in

Sieg Hannig
Labour Reporter

With only 10 cm clearance between roof and floor in some places, rescue workers inched forward all weekend in efforts to save the men trapped by Friday's pressure burst in the Doornfontein gold mine.

The bodies of two black miners were brought to the surface yesterday. Four men are still trapped.

The rescuers advanced as little as "a foot an hour" in some areas, knowing only too well that an hour gained or lost might mean the difference between life and death for the trapped men.

Lying flat on the hard, abrasive rock, they fought on — eight white officials and 60 black workmen at a time, toiling in six-hour shifts round the clock.

Where they were unable to advance, they widened the gap by prising loose the hanging (roof) or the footwall (floor) with pinch bars and pneumatic picks.

Every boulder that had been loosened had to be dragged out by hand in the warm, clammy atmosphere 1933 m below the surface to make way for the next.

By midday yesterday the four gullies (access ways) had been cleared and the rescuers had penetrated roughly two-thirds of the 130 m of working face blocked by the rockburst at 8 a.m. on Friday.

They concentrated their efforts on the areas where those who had es-
Search for trapped miners.

News
To the Ground Back.

The Star, Monday, February 27, 1978
Miner tells of ordeal

Mr. Landis told the newspaper reporter that he was trapped underground in the mine for many hours. He described the experience as terrifying and dangerous. He said that he had to dig his way out using a pickaxe and a shovel. He mentioned that he was fortunate to have survived, given the harsh conditions he faced.

When he was finally rescued, he was taken to a hospital where he underwent a thorough medical examination. He was found to be in good health, but he did suffer from exhaustion and dehydration. He was treated for minor injuries and released from the hospital the following day.

Mr. Landis said that he had never been underground before and that it was a challenging experience. He called on the government to ensure better safety measures are in place to prevent such accidents from happening again.

The incident highlighted the importance of safety protocols in the mining industry. It also served as a reminder of the risks that miners face on a daily basis.

Mr. Landis said he was grateful to be alive and thanked the rescue team for their efforts. He said he hoped to return to work as soon as possible.

The miners' union called for an immediate investigation into the incident to determine the cause and prevent similar accidents in the future. They said that safety should always be the top priority in the mining industry.

The government announced that it would provide financial assistance to Mr. Landis and his family to help them recover from the trauma of the incident.

Mr. Landis said that he would be forever grateful to the people who had helped him during this difficult time. He called on others to support the mining industry and the workers who risk their lives every day to provide for their families.

The miners' union said that it would continue to fight for better working conditions and safety measures in the mining industry.
Miner's ordeal in dark

JOHANNESBURG — As hope faded yesterday for three miners workers trapped in the Doornfontein gold mine, another miner told of his 24-hour ordeal of silence and darkness.

Mr. Landle David (35), a loader on the mine near Carletonville, was pinned to the ground by a rock which lay across his legs after Friday's pressure burst.

As rescue workers entered the fourth day of hard work in unpleasant heat almost two kilometres underground, it was thought likely that the miners still trapped would have died of thirst.

Nine bodies have been recovered so far.

Mr. David said: "I was very scared. I could do nothing, see nothing and shouted myself hoarse calling for help. When I heard the rescuers approaching me I thanked my God that I had been saved."

He had only cuts and scrapes on his arms and stomach.

He said he would go back underground but first wanted to visit his wife and child in Transkei. — (Sapa.)
Two still missing at mine

Labour Reporter

The confirmed death toll from Friday's pressure burst at the Doornfontein gold mine, near Carletonville, stands at 10.

Only two men remained missing as the rescue team entered their fifth day effort after 8 am today.

It is believed that only a freak supply of water could have saved the lives of the missing men.

"We've covered most of the working face now," said Mr Ray MacNaughton, Doornfontein's general manager.

He revealed that the only seriously injured man among the 22 workers still in hospital yesterday had improved and is now in a satisfactory condition.

All the bodies of the men confirmed dead have been recovered.
The rescue drama after
the pressure burst at 8
am on Friday in the
Doornfontein Gold Mine,
near Carletonville, ended
today.
The body of the last
man trapped 1,553 m
underground was located
early today. This brought
the final death toll to 12.
3 miners killed

Three black miners died in a pressure burst on the 52nd level of the Western Areas Gold Mine this morning, reports Sapa.

Four men were slightly injured. Three are trapped 1422 m below surface where rescue operations continue.

Names of the dead have not yet been released.
WELKOM. — Three men are trapped at an intermediate pump station in a shaft at the St Helena gold mine near here.

An announcement by the directors of the company said a shaft accident had put the pump station out of commission. There was no loss of life and nobody was injured. The extent of the damage was being ascertained at present.

Three men at an intermediate pump station remained within the shaft area. Contact with them had been made and rescue operations are being organised. — Sapa.
WELKOM. — Three men who were trapped at an intermediate pump station in a shaft at the St. Helena gold mine near there were brought to the surface unharmed, according to a Union Corporation spokesman.

The men had remained at the station after an accident had put the shaft out of commission. There was no loss of life and nobody was injured. — Sapa.
Miner killed
KRUGERSDORP — One Black mineworker was killed and five were injured in an underground strain-burst at the West Rand Consolidated Gold Mine near here early yesterday, General Mining and Finance Corporation reported — (Sapa) (212)

Weinkle toegelaat

Nabte van: skere toegelaat gehou
hetefie " "
heetse " "
ander

Waarde aan boer

Gond

Gyduurlike vorskaf gebruik
Waarde aan boer:
Water (jaarlike koste aan boer)
Koste van ander dienste b.v. saad, gebruik van plaasmasjinerie

Ekere artikels vorskaf deur boer (jaarliks)

Koste aan boer:

Bonus (jaarliks)

Geskenke (jaarliks: artikels)

Koste aan boer:

Ontspanningsgeriewe vorskaf:
Koste aan boer (jaarliks):

Gesondheidsdienste:
Jaarlike koste aan boer van: doktersrekening betaal medisyne

vervoer na en van geriewe ander

Totale mediese koste

Pensioenbydrae deur boer (jaarliks)

Versekeringsbydrae deur boer (jaarliks)
24-hour search for man in mine

The Argus Correspondent

JOHANNESBURG. — Teams of 60 to 70 volunteers are working in seven-hour shifts round-the-clock to locate one miner still trapped after a pressure burst which killed seven at the Blyvooruitzicht goldmine, near Carletonville, yesterday.

The burst, described as a relatively minor one, occurred about 2,400 m below surface in the mine’s No 4 shaft.

Last September, 32 men died in the same shaft in what was described as the highest death toll in a pressure burst in 49 years.

The general manager of Blyvooruitzicht, Mr. J. B. Forbes, said 17 men escaped with scratches and minor injuries, but one had a fractured skull and another a broken leg.

He said several men were trapped by the fallen rock, but all but one were rescued. They belonged to a team of 43.
Miner loses leg

Staff Reporter

ONE of the 12 miners rescued from the Buffelsfontein Gold Mine near Stilfontein last Friday has had a leg amputated.

A mine spokesman yesterday described his condition as very good.

Another 21 miners were still in hospital yesterday following the rockfall in the 29 haulage east of the Southern Shaft last Wednesday.

The rockfall followed an earth tremor. The spokesman said the men were also in a very good condition.

Sixteen men died in the rockfall. The four black miners still missing are presumed dead, buried under tons of rock.

"The mine started sealing off the accident area with cement yesterday.

"The mine spokesman said a memorial service would be held for the dead men at the Southern Shaft at the mine at 3 pm tomorrow."
Recovery of 100 miners

The bodies of victims of an explosion in which 100 miners died last August in the Moatize coal mine in Mozambique are now being brought to the surface, according to Radio Mozambique.

The radio said East German experts had drained flooding which had prevented rescuers reaching the bodies.
Mine burst shakes

Boksburg

A severe pressure burst struck two shafts of the ERP gold mine this morning. Several miners and workers were injured, the mine management said.

No one was killed, and as far as could be ascertained, there were no missing miners or workers, the spokesman said.

The burst occurred in the K and H shafts at 8.30 am. Sixteen working faces in the K shaft and six in the H shaft were affected by the burst.

Buildings shook and windows were broken.

The tremor was felt to rumble off towards Germiston where buildings shook from the force of the burst.

It registered 4.0 on the Richter scale at the Geological Survey in Pretoria and lasted five to six seconds—Sapa
Four die in mine rescue drama

BY JUNE WOTHERСПOWN and MIKE ENGELBRECHT

FOUR mine officials were killed in a rockburst and another critically injured when they went down Buffelsfontein gold mine near Silfontein early yesterday to rescue colleagues trapped in a rockburst.

Late last night rescue teams were still struggling to free an unknown number of men trapped 2.5 km underground after a severe earth tremor — the highest recorded on the Reef — shook the mine and caused the rock fall.

Twenty-four black miners and two whites have been brought to the surface and are in hospital with minor injuries. One black was trapped for five hours before the rescue teams could reach him.

The four men who went down to investigate after the first rock burst were killed when the roof fell in. They were all from Silfontein. They were Mr H J P Olivier, 40, a shift boss and father of two of Buffelsfontein Road; Mr S W van der Merwe, 34, a mine captain and father of two of Jan van Riebeeck Avenue; Mr B J Smal, 40, a shift boss and father of three, also of Jan van Riebeeck Avenue; and Mr T P Ryan, a mine captain and father of three of Gerald Street.

The critically injured miner is Mr J Meyer. The two whites who received minor injuries are Mr E. Visser and Mr C Lambrecht.

The dead men had gone down after an earth tremor had damaged a stope on the 27th level and workings on the 28th level of the southern shaft.

When a second, more severe tremor rocked the mine, the roof fell in on the men.

Production could be hit if affected, a spokesman of General Mining and Finance Corporation said.

The seismic disturbance registered 4.6 on the Richter scale at 11 am which is a high as one gets for tremors on the Reef, according to Professor H. Nicolaysen, of the geological survey unit at the University of the Witwatersrand.

"It is of the same magnitude as the tremor in Welkom in 1976 and usually a tremor this severe occurs only a couple of times a year," he said.

In February this year six black miners were killed and 18 were injured in rock falls after a...
Rescue workers battling in difficult, dangerous conditions have heard the voices of some of the 23 miners trapped by a rockfall in the Buffelsfontein gold mine.

The rescue workers are having to worm through a confined space with rocks being dislodged all the time. A mine spokesman said two teams were working round the clock in shifts.

Five white miners have died after a severe earth tremor caused the rockfall at the 28 level of the mine at the southern shaft yesterday. The tremor measured 4.6 on the Richter scale.

A spokesman for the company said the men told rescuers through the pipe. "We are alive and OK."

Thirteen of the trapped men were safe.

The rescuers were trying to get water through to the men.

Mr. J. N. Meyer (30), father of one child and with an expectant wife, died in the Chamber of Mines Hospital in Johannesburg last night.

Others who died were Mr. H. J. P. Olivier (48), a shift boss and father of two, of Buffelsfontein Road, Stilfontein, Mr. S. W. van der Meuw (34), a miner and father of two, of Jan van Riebeeck Avenue, Mr. B. J. Smal (40), a shift boss and father of three, also of Jan van Riebeeck Avenue and Mr. T. P. Ryan (37), a mine captain and father of three, of Gerald Street.

Two whites were slightly hurt in the rock fall. They are Mr. C. Lambrecht, a section manager, and Mr. E. Visser, who is employed by a contracting firm that works at the mine. Mr. Visser is in
The headgear of Buffelsfontein Gold Mine near St. Illefontein where five miners were killed by rock fall and 23 are still trapped more than 2 500 m underground.
Rumble

The mine official confirmed that there were no whites still trapped underground with the 23 miners. "All of us in Stilfontein felt the bump and heard the rumble of the tremor for quite a while," said a relative of one of the dead who asked not to be named.

Professor L O Nicolaysen, director of the Bernard Price Institute of Geophysics at Witwatersrand University, said the tremor's intensity was the same as that of the tremor which caused the collapse of a block of flats in Welkom in 1978.

Mrs Adelaide Smal and her three children, Daleen (15), Kobus (11) and Hettie (9), were comforted by friends and four ministers yesterday and today at her home in Van Rebeecck Avenue, Stilfontein.

Stilfontein was rocked by three earth tremors yesterday at 8:45, 10:50 am and 12:45 pm. "The last tremor was the worst..."

Family overcome by grief

Mrs Adelaide Smal, wife of rock-fall victim Mr B J Smal of Stilfontein, was overcome by grief with her are (left to right) her children Daleen (15), Kobus (11) and Hettie (9).
Voices of trapped miners come through

"We're all right"

Staff Reporter

Stilfontein

Rescue workers battling in difficult, dangerous conditions have heard the voices of some of the 23 miners trapped by a rockfall in the Buffelsfontein gold mine.

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Others who died were:

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Two whites were slightly hurt in the rock fall. They are Mr C Lambrecht, a section manager, and Mr E Visser, who is employed by a contracting firm that works at the mine. Mr Visser is in Kempton Park Hospital with a fractured leg.
Johannesburg — Four mine officials were killed and another critically injured when they went down Buffelsfontein gold mine near Stilfontein yesterday to investigate a rock burst.

Last night rescue teams were still struggling to free an unknown number of men trapped 2,5 km underground after a severe earth tremor — the highest recorded on the Reef — shook the mine and caused the rock fall.

Twenty-six miners were brought to the surface and are in hospital with minor injuries.

The four men who went down to rescue the trapped men were killed when the roof fell in. They were all from Stilfontein.

They were Mr H. J. Olivier, 48, a shiftboss and father of two; Mr S. W. van der Merwe, 34, a mine captain and father of two; Mr B. J. Smal, 40, a shiftboss and father of three; and Mr T. P. Ryan, a mine captain and father of three.

The critically injured miner is Mr J. Meyer.

The dead men had gone down after an earth tremor had damaged a stope and workings.

When a second more severe tremor rocked the mine the roof fell in on them.

This tragedy brings to at least 28 the number of men who have died in various accidents at the mine since December 1976 — DDC
Death mine at Freed

12 freed underground rockfall

Rescuers break through
Stilfontein

Rescuers at Buffelsfontein Gold Mine, near Stilfontein, were this afternoon pulling 12 black mine workers to freedom through a small opening in the rockfall, 2,500 m underground.

A spokesman for the mine said two men had been pulled to safety through the rubble on the 29 East haulage and were not seriously hurt. Two doctors, who have already gone underground, will give them emergency treatment.

A thirteenth black mine worker who was trapped with the others is feared dead.

A mine spokesman said a small opening was made in the rockfall and food and water, cigarettes and high protein liquid food were passed by hand to the black mineworkers who had been trapped for about 80 hours.

"The situation is very promising, but it will take some time to remove all rock and make the opening bigger," said the spokesman.

Torchlights have been passed through to the men. Earlier today a miner squeezed through a narrow air pipe to reach the trapped men more than 3 km down.

The team was formed by Mr. Prentorus, who is the father of three, making the hazardous trip twice, some of the miners trapped since Wednesday.

Crushed

In his rescue crawl, Mr. Prentorus, moving slowly along the pipe, near the centre rockfall, managed to worm his way 18 m along the pipe. He crawled 12 m into the air pipe which is penetrating the rockfall area where three white miners were crushed to death.

"The boss boy told me the men were all right. I tried not to upset them by asking questions. I said, 'We are on our way, don't worry,'" said Mr. Prentorus.

Rescuers also tried to pump water to the men through a narrow hose.

The rockfall, triggered by a series of severe earth tremors, killed five senior white miners.

"The trapped men we've made contact with are in good spirits, and we have high hopes of getting them out alive," said the mine manager, Mr. G. Jacobs, said.

We said rescue workers were working in hazardous and confined conditions.

Mr. Johan Wild, a mine captain and one of the rescue work leaders, said last night that the three rescue teams were working in bad conditions and in a dangerous area.

"We will never give up," Mr. Wild said.

Mr. Pretorus pulled a trapped miner ahead of him in the steel pipe with difficulty; the sides less than 1 cm from...
Desperate bid to save 13 miners.
By BRIAN O'FLAHERTY

STILFONTEIN

RESCUE WORKERS last night began drilling a 38 m long supply-tunnel through tons of rock in a desperate bid to get food and water to 13 black miners trapped more than 2 km below ground at the Buffelsfontein Gold Mine in Stilfontein.

The death toll in the rockfall at the mine — triggered off by an earth tremor on Wednesday morning — last night rose to nine as one of the trapped miners reported that they had four dead men with them. Five mine officials have already died in the tragedy.

The rescue teams first discovered the whereabouts of the trapped men, trapped for more than 30 hours when they heard voices coming down a ventilation pipe on the 29th level.

The rescue team was searching for 25 miners reported missing after the rockfall.

The rescue workers are believed to be between 5 to 15 m from the trapped men. The supply-tunnel is being drilled from below the trapped men.

The men are trapped in an area of about 60 m in the 29 East haulage in the southern shaft at the mine.

The earth tremor, at about 11 am on Wednesday morning, caused rockfalls in three places in the haulage.

The men are trapped between two of these falls and rescue workers are removing the rock by rock to reach them.

A mine spokesman said last night: "We are drilling a 2-inch diameter hole through the rock from a parallel haulage and we will devise a plan to get food and water through to them. Rods with wires attached can be pushed through the hole and used to get things to the trapped men."

Meanwhile, three teams of 18 miners each are working round the clock in shifts to reach their trapped colleagues.

The exhausted leader of one of the rescue teams, Mr Johan Wulder last night said: "Conditions are really bad and dangerous but we will not give up hope of reaching these men."

He said rescue workers first heard the miners' voices coming down a ventilation pipe from the stricken section of the haulage.
Mr. Chris Lamprecht, a section manager at Buffelsfontein Gold Mine, who was saved from death when ventilation pipes protected him from falling rock.
Survivor tells of screams in tunnel

By BRIAN O'FLAHERTY

STILFONTEIN. — A miner who survived the rock burst at Buffelfontein Gold Mine told yesterday how he lay protected by ventilation pipes from falling rock and listened to the “horrible screaming” of a man trapped beside him.

Mr Chris Lamprecht, a section manager at the mine's southern shaft, was one of seven white men working in the 29 East haulage on Wednesday morning when an earth tremor measuring 4.6 on the Richter Scale caused three rockfalls.

“We were in the haulage repairing it after a rockfall the night before,” he said.

Mr Ryan and Mr Van der Merwe were working on the service pipes, while Mr Visser, Mr Olivier, Mr Smal and I were talking about the work.

“There was a loud explosion and rocks were caving in on all sides. I felt a blow on my face and next thing, I was lying on the ground with rocks and other material on top of me.”

“When the dust settled, I looked around. I saw Mr Visser lying next to me with his legs trapped under a ventilation pipe.”

“On my other side was a black man, also trapped under a pipe. He was screaming terribly.”

“I screamed myself for Mr Ryan and Mr Van der Merwe, but there was no answer. My legs were also trapped. I managed to free one leg fairly easily.”

“The pipes absorbed the impact and probably saved our lives.”

The three were in the haulage for about half an hour before rescue workers reached them.

Mr Visser was admitted to Klerksdorp Hospital where his condition is said to be satisfactory.
Death toll in mine disaster rises to 12

The Argus Correspondent

STILFONTEIN.—The death toll in Buffelsfontein gold mine here rose to 12 today when three more black miners were found crushed 2.5 km underground.

Rescue workers are inching their way through the final 10 metres of rock separating them from 23 miners who have been trapped since a rockfall on Wednesday.

These trapped men have told rescue parties that they think the bodies of four miners are buried near them.

The mine manager, Mr. G. Jacobo, said it was hoped that all the survivors would be rescued.

THE BODY

Rescue workers yesterday brought to the surface the body of one of the five white miners who died. He was Mr. Ben Smal (40), a shift boss and a former Olympic boxer.

Ventilation pipes and a hopper probably saved two men from being buried alive in the rockfall.

They were Mr. Chris Lamprecht, 25, a section manager, and Mr. E. Vesser, a mine engineer.

The men who died 2.5 km underground were: Mr. S. W. van der Merwe, Mr. B. J. Smal, Mr. F. H. Ryan and Mr. H. J. P. Olivier.

A fifth miner, Mr. J. Meyer, died in hospital later.

Mr. Lamprecht yesterday told of how rocks carved in and how he screamed to see if the men were still alive.

"I realized that I was lucky to live," he said. "What happened is something that can happen at any time."

Mr. Lamprecht said that on Tuesday there was a rockfall and men were working to clear the rock. On Wednesday he, Mr. van der Merwe and Mr. Ryan went to the site. Mr. Smal and Mr. Olivier were also there.

STAYED ON

Mr. Lamprecht said that Mr. Vesser was fighting for the lives of Mr. Ryan and Mr. van der Merwe but got no reply.

His legs were trapped by fallen rock, but he managed to free himself and crawl upwards through a narrow passage between rocks.

"Ventilation pipes and a hopper absorbed some of the pressure of the rockfall and probably saved my life and that of Mr. Vesser," he said.

Mr. Lamprecht said that 30 minutes after the fall, rescue came to help him. They battled for 45 minutes until Mr. Lamprecht managed to climb through the passage to safety.

Mr. Jacobo said today that the trapped men were in "good spirits."

Mr. Johan Wad, a mine captain, and rescue teams were working in hazardous and confined conditions.
Rescue teams drill to feed 13 trapped miners

STILFONTEIN. — Rescue workers last night began drilling a 38-metre hole through rock in a desperate bid to get food and water to 13 miners trapped more than 2 km below ground at the Buffelsfontein Gold Mine.

The death toll in the rockfall at the mine — triggered by an earth tremor on Wednesday morning — last night rose to nine as one of the trapped miners reported that they had four dead men with them. Five other miners have died.

The rescue teams first discovered the whereabouts of the trapped men, who have been underground for more than 30 hours, when they heard voices through a ventilation pipe on the 29th level. They were searching for 25 miners reported missing after the rockfall.

The rescue workers are believed to be between five to 15 metres from the trapped men.

The men are trapped in an area of about 60 metres in the east haulage in the southern shaft at the mine. The earth tremor, about 11 a.m. on Wednesday morning, caused rockfalls in three places in the haulage.

The men are trapped between two of these. Meanwhile three teams of 18 miners are working round the clock in shifts to reach their trapped colleagues.

The exhausted leader of one of the rescue teams, Mr Johan Wind, last night said: "Rescue workers first heard the miners' voices. They didn't say very much. They said there were a few of them alive and that a couple of them were hurt. One of them told us there were four dead men with them."

"We tried to push torches, water and food through the pipe to them but it was too badly buckled."

"It's difficult to know how the trapped men feel, but they must be scared," he said.

At this stage there is no indication of where the other missing miners are. Rescue workers yesterday brought to the surface the body of one miner who died in the rockfall.

He was Mr Ben Sal, 40, a shiftboss, and a former Springbok boxer who fought for South Africa in the Olympics in 1960.

His body was the first to be found. By last night, rescue workers reached three other bodies, buried beneath tonnes of rock.
A Cape Times map of the Buffelsfontein mine disaster area shows the rescue tunnel which was completed yesterday and through which 12 miners were rescued. Most of the bodies found were trapped in the main landslide on the night and were by-passed in the desperate struggle to get to the living miners in the area marked "X". This area was initially thought to be intact but probe teams have found it filled with rock and debris which is hampering the search for the four miners still missing. A second rescue tunnel which was started to angle in at the present one from the other face of the cave-in was abandoned when rescuers failed to get beyond two metres into the fallen rock after almost 20 hours of tunneling operations.
12 rescued mine miracle

By BRIAN O'FLAHERTY and CHARLIE MOCALE

TWELVE miners were rescued yesterday after a 51-hour ordeal buried 2.5 km underground in the Buffelsfontein gold mine near Stilfontein.

Another four miners were still missing underground last night. Rescue operations to find them continued but a mine spokesman said: “There is very little hope for them.”

The death toll at the mine rose to 16 yesterday as rescue workers discovered the bodies of seven black miners.

The first miner to be carried from the cage which brought him to the surface from the deathtrap, Mr. Mpul Ceka, said: “I didn’t believe I could get out…”

“I am glad I did…” I saw nine of my colleagues crushed to death.”

Rescue workers first reached the men about 1 pm. They had tunnelled 60 m through fallen rock in dangerous conditions in the 29 haulage east in the southern shaft at the mine.

They opened a hole slightly bigger than a man’s fist and passed water and high protein drinks to them. Until then the trapped men had been drinking rainwater running through the haulage.

The hole was enlarged and about 2 pm the first six miners crawled along the tunnel to safety.

Doctors were on the spot to treat them — and they were taken to the Duff Scott Memorial Hospital.

A mine spokesman said: “The first six men to get out are in very good shape and have only minor injuries. Some of the others have broken limbs but nothing too serious.”

Mr. Casswell Fuma, 20, from the Eastern Cape, said: “It was very bad, I don’t know what happened but I am not going back to the mine. I am going home.”

“My waist was sandwich-between rocks and pipes. There was no food. I was hungry. The pipes were pressing on me all the time but now I feel all right,” he said as he was lifted into an ambulance.

Mr. Ceka, 18, from the Ciskei, described what happened in the haulage after an earth tremor ripped through the area causing the deadly rockfalls.

“I heard a loud bang and something hit me hard on the head. Rocks and rubble were falling from all sides.

“I tried to run out but the path in front of me was blocked. I turned around and saw that rock had collapsed on the other side trapping us.

“More rocks hit me.

“I don’t know what happened after that.

“It was terrible down there but I am going back to the mine when I am well,” he said.

Mr. Mosibi Masilo, from Botswana said: “I don’t want to work in a mine again. I just want to go home.”

Earlier yesterday a diminutive shift boss at the mine, Mr. Willie Pretorius crawled up an air column in an attempt to reach the trapped men.
Trapped miners' 50-hour ordeal ends

'We won't go down again'

Robert Kennaugh
Stilfontein — Some of the black miners who had been trapped underground at Buffelsfontein gold mine for about 50 hours, swore never to go below the surface again.

Rescuers, who had worked round the clock since midnight, brought them up to the surface. They were carried on stretchers and wrapped in blankets. They had been without food and fresh water.

Rockfalls in three places on the east shaft caused rock to fall into the mine. At least three men were killed by the rockfall.

Miner Giza (18) from Transkei said from his stretcher, 'I have nothing to eat and I am very hungry. I want to go out and呼吸 on Monday. But I am not afraid of the darkness."

A rescued mineworker sees the light of day for the first time in more than 50 hours.

Rescue workers waiting at the shaft-head to go underground in search of the remaining four mineworkers still unaccounted for.
Never Again—Rescued Miners

SATURDAY APRIL 29, 1978

(12)

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Weekend Argus Correspondent

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A MINEWORKER is brought to the surface after being trapped for two days.
‘Very little hope’ for 4 still trapped in disaster mine

Own Correspondent

JOHANNESBURG. — Twelve miners were rescued yesterday after a 51-hour ordeal buried 2,5 km underground in the Buffelsfontein gold mine near Stilfontein.

Four men died on the first day of the disaster, five bodies were recovered on Thursday and yesterday the bodies of seven more black mineworkers were found, bringing the death toll to 16.

Another four miners were still missing underground last night. Rescue operations to find them continued unabated but a mine spokesman said: “There is very little hope for them.”

The death toll at the mine rose to 16 yesterday as rescue workers discovered the bodies of seven black miners.

The first miner to be carried from the cage which brought him to the surface from the deathtrap, Mr Mpho Ceza, said: “I didn’t believe I could get out ... I am glad I did ... I saw nine of my colleagues crushed to death.”

Rescue workers first reached the men about 1pm. They tunnelled 60 metres through fallen rock in dangerous conditions in the 29 haulage east in the southern shaft at the mine.

They opened a hole slightly bigger than a man’s fist into the area where the men were trapped and passed water and high protein drinks to them. Until then the trapped men had been drinking drain water running through the haulage.

The trapped men saw the lights of the rescue team as they unchained their way towards them. The rescue team enlarged the hole and about 2pm the first six of the trapped men crawled along the tunnel to safety. Doctors were on the spot to treat them and they were taken to the surface on stretchers.

Rescue workers had to go into the area where the men were trapped and haul the other six men out and along the tunnel on stretchers. All the men were taken to the Duff-Scott Memorial Hospital in the mine.
Twelve miners were yesterday rescued after a 21-hour ordeal burned 2.5km underground in the Buffelsfontein gold mine near Sallfontein.

Another four miners were still missing underground last night.

Rescue operations to find them continued unabated but a mine spokesman said: "There is very little hope for them."

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The first miner to be carried from the cage which brought him to the surface from the deathtrap, Mr. Mpli Ceza, said: "I didn't believe I could get out."

I am glad I did, I saw nine of my colleagues crushed to death."

Rescue workers first reached the men about 11 p.m. They had tunneled 60 metres through fallen rock.

They opened a hole slightly bigger than a man's fist into the area where the men were trapped and passed water and high-protein drinks to them.

Until then the trapped men had been drinking drain water running through the haulage.

The trapped men had seen the lights of the rescue team as they inched their way towards them.
Sixty hours of prayer saved us, says mine survivor

By RENNIE BOTHA

Sixty hours of prayer saved the lives of the 12 black miners trapped 2,5 km underground in Buffelsfontein Gold mine, according to Mr Piet Moabi, leader of the 12.

"By late yesterday it was clear the death toll would climb to 20 as the last glimmer of hope faded for the four black miners still missing. Officials said it would take a miracle to save them.

Speaking for the first time since the disaster, Mr Moabi told me from his hospital bed of the horrying ordeal. The 12 men experienced in the crumbling mine shaft.

"Only the sound of rescuers' voices inspired us to keep praying," he said.

"On Wednesday, while working underground, there was a crash and we were pounced with rocks from all directions.

"We scattered and took shelter under the loco (the underground tram used for removing ore). I thought it was the end and that death had come.

"All that went through my mind was the thought of my parents. During the whole ordeal hardly a word was spoken, all that could be heard was the continuous whisper of prayers until we were finally rescued.

"We knew we would be found, as once or twice a day we could hear voices in the distance and I kept reassuring my men that someone would find us."

Mr Joseph Notselle, 42, the most seriously injured survivor, who suffered a crushed left leg and chest injuries, said "I will go underground again. I don't believe my day is up yet.

"I felt the rocks crashing down on me and thought I was dead. But later, I realised I was still alive and felt the pain in my leg. The four men who were not injured struggled for more than an hour to uncover me.

"My left leg was crushed and bleeding. All I could do was lie as still as possible, as the pain was almost unbearable. I prayed and thought of my wife and children."

A spokesman for the Duff Scott Mine Hospital said he was amazed at the general condition of the men after their ordeal. All were in a satisfactory condition.
MUCH emphasis has been placed on increased mechanisation in underground mining to increase productivity and achieve the maximum output for the industry.

In the deep, hard-rock conditions of the South African gold mines profitable mechanisation will not be possible until there is an understanding of the cause of uncontrolled rockbursts, and a willingness to apply principles firmly established elsewhere in the control of rock stresses at the stope face.

The basic equipment required for mechanisation of stoping operations is similar to that used in coal: It consists of a cutter or breaker and loader, a face conveyor, combined with self-advancing face supports and a trunk conveyor to take the broken ore to the conventional ore hoistage system.

In the past decade some progress has been made in the design and testing of new equipment to meet the requirements of the higher stresses and harder and more abrasive rock of the gold mines. But because of the risk of exposing the high capital investment in such equipment (in the order of R10 000 per metre) to loss by rockburst, full operational use cannot be justified.

Exceeds

A rockburst is the release of stored energy after the fracturing of rock, which has failed under stress. As underground mining operations expand, the area of rock supporting the total load is reduced and the unit stress on the remaining rock is increased. When the unit stress exceeds the unit strength around the periphery of the excavation, rockbursts occur.

They invariably occur when blasting takes place and it is the resulting fractures that make mechanised mining a possibility. The amount of fracturing is proportional to the newly blasted area, and it occurs simultaneously with the blasting, when no people or equipment are in the danger area.

Uncontrolled rockbursts, frequently catastrophic, occur at other times than when, although the unit load is constant, the strength of the rock in the periphery of the stope is reduced. The fracturing and release of energy from such a rockburst could be 1 000 to 10 000 times greater than that caused by blasting.

Rockbursts of this kind can close up hundreds of metres of stope face, trapping men and equipment. More than 40 miners have been killed by rockbursts in the first quarter of this year, and it is not generally realised that the incidence of this type of mining disaster is increasing.

Fall-of-ground fatalities, particularly due to rockbursts, remained constant at about 0.75 per 1 000 people employed in the mines for about 30 years. But in the last two decades, fatalities increased from around 10 a year to more than 100. Last year, the rate was 14 persons killed for each thousand employed.

Implicit in the concept of mechanisation of stoping operations is the understanding that it will not be feasible until rockbursts can be controlled. A rockburst in a mechanised stope would mean not only the loss of hundreds of thousands of tons of ore, but the loss of access to the work face because of the blocking of twisted steelwork and rock.

A single rockburst in a mechanised stope could easily mean a financial loss equal to the total compensation currently being paid yearly for all rockburst fatalities.

However, uncontrolled rockbursts are not inevitable. The explanation of rockbursts given briefly above has general acceptance among mining engineers throughout the world over. For reasons not determined to me, it is not accepted, or at least not effectively acted upon, in South Africa.

Conditions in South African gold mines differ from those elsewhere in that the workings are generally deeper, the rock is stronger, virgin stresses are higher and the rock harder. But these conditions do not make the prevention of uncontrolled rockbursts impossible. They do require that the principles adopted in shallower mines be accepted, and equipment and methods modified to match the more strenuous conditions.

Mechanisation

The prerequisite of successful mechanisation in stopes is that the stresses on the rock face be controlled at a predetermined level. It is the high virgin stress level that makes possible the mechanical (non-explosive) breaking of the hard rocks of our gold mines. To make mechanisation possible, the stresses on the rock face must be controlled at a level fractionally below the rock strength so that the added stress induced by the breaking of the rock fractures the rock.

The factors that determine the stress at the rock face, other than geological ones, are the configuration of the stope face and the measures adopted to control the stresses in, and the movement of, the fractured rock in the hanging and foot walls of the stope.

Proper design and implementation of these measures will enable the stresses in the rock face, both virgin and induced, to be harnessed to work for, not against, the safe and profitable exploitation of the ore body.

Given this approach economic mechanisation of stoping operations is possible.
How mining causes a rockburst
Above: Mining activity approaches a weakness in the rock (a potential fault) causing rock strata to subside.

Above right: As mining activity approaches, resistance in the weak area is overcome, causing a sudden slip.

Right: Shock waves generated at the point of the slip damage the mine workings.
ROCKBURST! Of all the hazards in gold mining, this is probably the most feared of all, arising as it does from the seemingly uncontrollable forces of nature, occurring suddenly and without warning and unleashing a destructive power which can render useless the protective works of man.

To the dwellers of mining cities a rockburst is an occasional unexpected tremor, a momentary fright. To a miner on the surface it means a missed heartbeat and an anxious thought for friends underground.

But for the miner below a nearby burst is a mixture of noise, violent movement, flying and falling rock and the squashing of roof supports.

For trapped miners, like those caught two km below in the Buffelsfontein Gold Mine at Stilfontein last week, a burst may mean injury or death.

What causes the rock to burst?

We know that at a depth of 2.5 km the rock surrounding any mining excavation is fractured, but this fracturing comes about, almost always, without violence and mining men the world over have learnt to support the rock which fractures gradually.

The difficult problem is to provide protection against unpredictable and violent events.

Mining results in the creation of cavities in the ground. As the cavities are made, the stresses in the rock inevitably change and the rock surrounding the cavities deforms.

If a fault exists in the vicinity of a mining excavation, it is conceivable that the rocks on the two sides of the fault would be subjected to deformation similar to that which would occur prior to an earthquake.

Just as many earthquakes are the result of a sudden slip along a fault plane, so a slip which mining men would call a rockburst, could result when mining starts a critical state along a fault plane.

Rockbursts, again like earthquakes, generate waves or vibrations in the rock. The wave front travels at a speed of about 6 km a second, so that soon after the slip occurs at the fault, the vibrations reach the mining excavations.

The size of the vibrations affecting the mining excavations differ greatly. They depend on the amount of energy involved and the distance from the centre of the original slip.

In more serious cases the vibrations may cause pieces of the fractured rock to dislodge and mine supports to disintegrate, allowing the mined out cavity to fill with rubble.

The severity of the destruction can be controlled to a degree by the quality of support used to secure the hanging wall. Hydraulic props have so far proved to be the most effective stope support because they are installed under pressure.

The unpredictability of rockbursts however arises from the difficulty of detecting in advance the presence of faults and accurately predicting the onset of slip between two rough surfaces.

This is where further research is still necessary. In spite of tremendous progress, the rockburst hazard has not yet been eliminated. — From the Chamber of Mines April report.
Miners' graves lie 2 km deep
18 bodies will be entombed in mine

JOHANNESBURG. — Eighteen of the 20 miners killed in the Buffelsfontein mine disaster at Stuiffontein last week are to be entombed more than two kilometres underground. Senior mine officials made a perilous inspection trip of the accident site yesterday.

The names of the 15 dead black miners are being withheld until their next of kin have been traced by the Chamber of Mines recruiting organisation.

The three whites buried in the mine are Mr Tommy Ryan, a mine overseer and father of three, Mr Schalk van der Merwe, a mine overseer with two children, and Mr Fhp Olivier, a shift boss and father of two.

The body of Mr Ben Snaai, a shift boss, was brought to the surface last week. Mr Nieko Meyer, a boilermaker, died in hospital.

Twenty-one miners including the 12 rescued on Friday are still in the Duff Scott mine hospital. They are all out of danger, a hospital spokesman said.

Funeral arrangements depend on the next-of-kin.
Dead to be sealed in mine

By GRAHAM BROWN

EIGHTEEN of the 20 miners killed in the Buffelsfontein gold mine disaster at Stilfontein last week will stay entombed more than two kilometres underground.

Senior mine officials made a perilous trip to the accident site yesterday.

The party, which included Mr Ian Bell, acting mine manager, Mr Gert Jacobs, assistant manager, and Mr Kobus Olivier, section manager, decided it would be foolish to risk more lives by trying to recover the bodies.

They reported dangerous underground conditions.

Fourteen bodies, including those of three white miners, have been identified. Four men are still missing, buried without doubt under tons of rock, according to a statement.

Mr Louis Grobler, general manager of the mine, said yesterday the bodies were entangled in pipes and rocks.

“Funeral arrangements depend on the next of kin. If relatives would like an interdenominational service anywhere, we'll fall in with their wishes.”

Approaches to the disaster area will be sealed off with concrete.

“This is a long, dangerous job because of the loose rock and because the area must be approached from different directions. It will probably take two days,” Mr Grobler said.

The names of the 15 dead black miners are being withheld until their next of kin have been traced by Teba, the Chamber of Mines recruiting organisation.

The three whites are Mr Tommy Ryan, father of three, Mr Schalk van der Merwe, who has two children, both overseas, and Fhpa Olivier, a shift boss and father of two.
Thousands mourn for miners

STILFONTEIN. — More than 3,000 people of all races attended the shaft-head funeral of 20 miners, 15 blacks and five whites, who died in last week's seismic accident at the Buffelsfontein gold mine near here.

The bodies of 18 of the men were left buried at number 28 level, two kilometres underground, because it was too dangerous to try to bring them to the surface.

Twelve black miners were rescued after being entombed for more than three days. — Sapa.
Funeral ban on black priest

AFRIKAANS churchmen forced the exclusion of a Roman Catholic priest from last week's memorial service for 18 of the miners killed in the recent Buffelsfontein mine disaster.

The mine withdrew its invitation to a black Catholic priest to take part after objections from the Hervormde and NG churches at Stilfontein.

If the Catholic had been included, the Afrikaans churchmen would have withdrawn because of "doctrinal differences," a spokesman for the mine said.

Five of the black miners were Roman Catholics — the largest single denomination among the 18 black and three white men killed.

The minister of each of the white victims took part in the service — one each from the Hervormde, the NG and, the Methodist churches. A black non-denominational evangelist, the Rev Daniel Marokane, said a prayer for the dead black miners.

The Catholic priest at Stilfontein, Father Ligtoeot, said he had been "surprised and very disappointed." He had sent a letter of protest to the local newspaper and was also sending one to the mine management.

Objections.

Mr Ligtoeot said he had been approached by mine officials on Tuesday morning, asking him whether a black Catholic priest would be prepared to take part in the service, to be held on Wednesday afternoon at the mine's southern shaft.

"I agreed, of course, as five of the dead men were Catholics, and I phoned Father Monyai in Potchefstroom to ask him if he would take part.

"He said he would be there, but then the mine management told me that, because of objections from the Hervormde and NG ministers, it would be better if no Catholic priest participated.

"We were very disappointed."

Mr Ligtoeot said he attended the memorial service as a spectator.

"My impression was that the blacks were not considered as important as the whites. Each of the three white ministers present said prayers on behalf of his own parishioner, but for the blacks it seemed good enough for an evangelist to say a prayer in Panagia.

"There was no even mention of the churches they belonged to or their names or where they came from. There was no prayer in their own language as a token of respect.

"These people worked and died together and they share a common grave."

A mine spokesman said that the last two weeks had been "terrible" on the mine and every attempt had been made to organise a service acceptable to all. He said that "various difficulties" had arisen and the mine management had decided to ask a non-denominational black minister to take part on behalf of the blacks killed.

"We mean no offence to anybody and feel that the mine did its best to organise a wonderful service — which was attended by more than 2000 blacks."

Dominee Benne van As, of the Nederduitse Gereformeerde Kerk in Stilfontein, said it was not just a case of doctrinal differences.

If the priest had taken part then ministers representing all the other denominations of the black victims would have had to be given the opportunity to participate. The service might have become unwieldy and lost its character.

But Mr van As said that his second objection had been on doctrinal grounds. There were dogma differences between the churches.
NGK men criticise disaster service ban on RC

By Fleur de Villiers

Leading NG churchmen and academics have spoken out strongly against the action of fellow Afrikaans churchmen who recently excluded a Roman Catholic priest from the memorial service for the 18 miners who died in the Buffelsfontein mine disaster.

Professor Bernard Lategan, professor of biblical studies at the University of Stellenbosch, and a fellow NG Church member, Professor A D Mueller, professor of industrial psychology at the University of the Western Cape, said this week that they had learnt "with dismay" of the incident.

The Roman Catholic priest had been excluded from the memorial service because of objections "on doctrinal grounds" from NG and Hervormde ministers at Buffelsfontein.

Common fate

"In those tense hours after the accident," Professors Lategan and Mueller said, "nobody inquired about the church affiliation of the brave rescuers before they were sent down. Neither was it a factor in deciding which survivors should be rescued first.

"The victims shared a common fate and, as the Roman Catholic Church was the largest single denomination among the 18 men killed, it goes without saying that it should have participated in the joint memorial service."

Professor Lategan said, "There is a time and a place where these differences can and should be discussed.

"We are dismayed at the lack of sensitivity which prevented the ministers from realising that a joint memorial service is neither the time nor the place."

The mine withdrew its invitation to a black Catholic priest to take part in the service because of objections from the white Afrikaans ministers.

Instead, a black non-denominational evangelist, the Rev Daniel Masokele, said a prayer for the black miners.
Miner dies

A BLACK miner died when struck by a falling rock in the Buffelsfontein Gold Mine on Tuesday. General Mining reported yesterday.

The dead man's name was (ing withheld until his next-of-kin had been informed. — Sapa
Three miners killed in rockfall

THREE miners were killed at the Lebanon gold mine near Westonaria yesterday, a spokesman for the Anglo American Corporation announced in Johannesburg.

They were employees of Shaft Sickers, an Anglo American Company.

The men were buried under a heavy fall of hanging on 30 Level of the Mine's Number Two sub-shaft.

A white shaftsinker and a black miner were killed instantly, and another black miner died on the way to hospital, the spokesman said.

Five other members of the shaft sinking team were also injured, but none seriously.

The shaftsinker was Mr Alfred Murch, 44, of Westonaria.

The names of the other two men will be released after their next-of-kin have been informed.

Meanwhile a spokesman for the Goldfields group said yesterday an underground fire was detected near the Number One shaft of the East Driefontein gold mine on Tuesday night, at a depth of about 1100 m.

"The affected area is being sealed off. No casualties occurred and indications are that loss of production will be about 15%," he said.

The fire was detected by the mine's regular fire patrol after completion of the day's blasting operations — Sapa.
Supreme miners honoured

Miners were honoured in a ceremony held at the State House in Harare. The event was attended by senior government officials and mine managers. The honours were given to miners who have shown exceptional courage and dedication in the face of challenges.

The honours include:

- The Mine Hero Award for outstanding bravery in the face of danger.
- The Mine Worker of the Month Award for outstanding performance.
- The Mine Safety Award for maintaining a high level of safety standards.

The honours were presented by the President of Zimbabwe, who praised the miners for their contributions to the nation's economy.

The ceremony was attended by a large crowd of miners and their families, who were all dressed in their uniforms.

Following the ceremony, the honours were presented to the recipients, who were then given a hero's welcome as they returned to their mines.
Gold mine fire under control.

A fire on the 38-level of Westonaria gold mine has been contained, a spokesman for Johannesburg Consolidated Investments said yesterday.

Full production will be resumed today but yesterday's output fell by 25%.
The fire was located in the area of the north shaft on Tuesday evening. — Sapa
MINERS were forced to scramble for safety after a fire broke out in an underground shaft at the Vaal Reefs gold mine in Orkney late yesterday afternoon.

A mine spokesman said nobody was seriously injured. Several miners were treated for smoke inhalation and later released. Production was halted briefly.
Miners trapped by fire

Johannesburg — Proto teams were making a desperate bid last night to reach several miners trapped more than 2 km underground by a fire at the Vaal Reef goldmine near Orkney.

The fire broke out in the number 8 shaft on the 73rd level, late yesterday afternoon, forcing miners to scramble as the blaze roared through the stope.

Several hours after the blaze broke out, mine officials became aware people were trapped underground.

A mine spokesman said close to 100 mineworkers were taken to hospitals after being overcome by fumes and smoke. — DDC.

Glossary

Based on order to undertake the research on which this paper is

ending... Reynolds to travel through Southern Africa in

reinset... Reynolds to Salima for three months, June - August, 1977.

Foundation, India for the generosity in seconding Dr.
Blaze traps miners 2km down

By Kevin Murray

About 41 miners are trapped more than 2 km underground by a fire at the Vaal Reefs Gold Mine, near Orkney.

Although proto teams have the fire under control, they are being hampered by flames and rock falls in the mine's Number Eight shaft.

More than 220 miners were treated at Westvaal Hospital yesterday after being affected by fumes from the fire.

"About 16 of them were detained overnight but none was seriously injured."

"The fire is not spreading, and the proto teams are controlling ventilation and sealing off certain areas of 73 level, where the fire broke out.

"Medical teams are standing by at the mine's hospital and four proto teams from adjoining mines have been brought in to help those that have been working throughout the night," the spokesman said.

"There is still some hope for the men. We don't know exactly where they are, but it is not a huge area we have to search. We know who the men are, but their names will not be released until next of kin have been notified."

It was not until several hours after the fire broke out that mine officials realised men were trapped underground.

The proto teams were working in searing temperatures and poisonous gas, the spokesman said.

"The cause of the fire had not yet been established, and it was difficult to judge how long it would continue to burn."
Fiery tomb for 41

By RAY JOSEPH

FORTY-one black miners trapped 2 km underground after a fire at the Vaal Reefs Gold Mine, near Orkney, have been given up for dead.

All attempts to reach them failed after proto teams were driven back by searing heat, non-stop rockfalls and dense smoke.

A statement from the mine's general manager, Mr R G Williams, said the decision to seal off the area where the men were trapped since a blaze broke out underground at 9 am on Friday, was made after it had been realised that the men had "no hope of survival".

"The decision was taken to avoid further risks to the lives of the proto team members and prevent the fire from spreading to other parts of the mine."
Smoke around us and the men were dying — mine survivor

THE area in which 41 Black miners were trapped by an underground blaze in the Vaal Reef Gold Mine near Orkney was yesterday sealed off when all hope was abandoned of saving their lives.

It was the most serious underground disaster in the mine’s history.

More than 80 miners scrambled to safety when the blaze broke out two kilometres underground. Later three of the ones who were rescued described the horror of the blaze to the Sunday Express.

About 27 hours after the fire broke out in number eight shaft a decision was taken to seal off the area in which the miners were trapped. Attempts by nine teams of rescue teams to reach them throughout the night were hampered by the intense heat and fumes.

A statement issued by the general manager, Mr R G Williams, said “Every attempt has been made to reach the area with teams but they cannot penetrate because of the intense smoke, rocks and intense heat.”

“The cause of the fire is not known. It was decided, that to avoid the risk of further lives and to prevent the fire from spreading, the rescue operation be called off and the tunnel sealed.”

The fire could take 10 days to burn itself out and there will be no chance of recovering the bodies until then. The names of the dead will not be revealed until then next of kin had been informed.

Three miners who were rescued from the area were among the 14 at the mine hospital after the accident.

Mr Moropong Kgqorere, 32, from Boshoff, said he had been trapped for three days. He said the first thing he knew as rock was exploding round the men.

“Smoke filled the whole place. Suffocating fumes surrounded us and the men were dying. I did not know what was happening. I ran to the next shaft and fell three times before I reached it. The next time I was conscious I found myself in the hospital bed.”

Mr Zanevula Nikasa, 21, from Umtata also said he had heard a rock exploding and later saw the whole area engulfed in smoke.

“I and some of my colleagues ran away to the next shaft. I was grabbed and pulled by a White miner before I fell. He took me outside and later I was taken to the hospital. I don’t know what happened to those who were with me.”

Mr Leukala Tom, 28, from Botswana said that after he had heard the explosion he was approached by his senior who asked what was happening.

Before he could answer they found themselves engulfed in the smoke and fumes.

“I don’t know what happened thereafter. I found myself at the hospital.”

A spokesman for Anglo American Corporation said overall production was not expected to be seriously affected.

Vaal Reefs is one of the biggest gold mines in the world employing thousands of men.
Brand in SA myn
eis 41

'N BRAND in die Vaal Reef-goudmyn naby Klerksdorp het die naweek 41 lawens geens Ná 'n vergeefse soektog van meer as 24 uur moes die nege protospanne hul reddingspogings staak sonder dat een van die 41, vangekeerde swart mynwerkers gevind is.

Vuur, rookdampe en rotstorting het die reddingswerkers se taak byna onmoontlik gemaak en gistermiddag is besluit om die 73ste vlak van die myn te verseil.

Die brand — die oorsaak is nog onbekend — het Vrydag kort voor die middaguur uitgebreek. Hoewel die alarm dadelik gegee is, kon die protospanne eers laat gisteroggend daarin slaag om die brand in bedwang te bring.

Allesames 233 mynwerkers van die brandende vlak is in die Wesvaal-Hospitaal behandel, maar net veertien moes die nag in die hospitaal deurbreng.

---

<table>
<thead>
<tr>
<th>Wielligh 80/5-2000</th>
<th>Actual output (1941-75)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6,0</td>
<td>8,3</td>
</tr>
<tr>
<td>7,4-8,3</td>
<td>9,4</td>
</tr>
<tr>
<td>5,0</td>
<td>9,4</td>
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<td>11,9</td>
</tr>
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<td>4,0</td>
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<tr>
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<tr>
<td>n.a.</td>
<td>1,7</td>
</tr>
<tr>
<td>n.a.</td>
<td>16,9</td>
</tr>
<tr>
<td>2,8</td>
<td>17,0</td>
</tr>
</tbody>
</table>

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Note: Source of column 4 is von Weilligh. Much of the growth in diamonds production was concentrated in the period 1941-45: for those 5 years von Wielligh records average compound growth of 74.25 per cent per annum.

Copper, Chrome, Manganese

There is agreement between the projections that in the long-term output growth will be in the 5-6 per cent per annum range - in all three cases substantially slower than they are reported by von Wielligh to have grown in the 1940-75 period. All three are dependent - and will continue to be dependent - on world markets and in particular (for chrome, manganese) on the world steel industry. Long-term growth at 5-6 per cent per annum by selling to that market is not implausible but would seem to require some increase in share of world markets - if one is to take the view that global rates of growth of world mineral production are not likely to improve on the 1961-75 performance.

**TABLE 40:** RATES OF GROWTH OF WORLD PRODUCTION, 1961-75 (VON WIELLIGH)

<table>
<thead>
<tr>
<th>Mineral</th>
<th>(per cent per annum)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chrome</td>
<td>+3.73</td>
</tr>
<tr>
<td>Copper</td>
<td>+3.42</td>
</tr>
<tr>
<td>Manganese</td>
<td>+4.00</td>
</tr>
<tr>
<td>(Total)</td>
<td>+3.57</td>
</tr>
</tbody>
</table>
Survivors tell of mine death blaze

A senior mine official in charge of the proto teams said yesterday: "Every single possible access into that area of the stope was examined as early as possible. Every way was found to be inaccessible and very dangerous."

It was decided to seal the place off because if rescue teams went into the area and there were rockfalls behind them, they would be trapped too.

"All the proto teams going down now are risking their lives. We'll take risks, but not stupid risks," the official said.

The proto teams at the disaster area yesterday were double-sealing the stope with vermiculite bricks, which were easily moved to the fire zone.

It was known yesterday that the fire was still raging.

Crawling up the steep incline, with only their cap-lamps to see by, 81 of the face workers reached the safety of shaft eight. But 41 of their colleagues were marooned in the confined darkness of the stope, which then began to collapse as the fire burnt away the 0.6m thick timber props which supported the stope roof at 10m intervals.

The cause of the fire may be established in the investigation by the Inspector of Mines.

"There are 80 people here who were around when it happened," a spokesman for Vaal Reefs said.

The blaze is thought to have started at the bottom of the stope, which followed the gold seam at an angle of 40 degrees. Smoke and fumes surged upward from the base of the stope towards the face where about 120 men were placing charges to blast loose the gold-bearing ore.

The stope, a huge underground gallery about 200 m square but only a metre high, was quickly engulfed in dense smoke.

"The chaps told me it was so thick you couldn't see a cap-lamp at a metre. The men who could move had to feel their way to safety," the spokesman said.

JOHANNESBURG — Proto teams at the Vaal Reefs Mine, Orkney, worked throughout yesterday to complete the sealing off of the stope 2km underground where 41 miners were trapped by fire on Friday.

All hope that the trapped men might have survived the intense heat and poisonous fumes was abandoned after large sections of the stope fell in as the fire burnt away the timber support props.

Mine officials have still not established the cause of the disaster, the worst in the 41-year history of the mine. It is believed the blaze could have been started by an electrical fault, friction of a steel winch rope or even a discarded cigarette end.
**Mine's condolences**

KLERKSDORP — The chairman of the Vaal Reefs gold mine, Mr D A Etheredge, has expressed the condolences of the mine's directors to the families and friends of the 41 mineworkers who were killed at the mine over the weekend.

"Despite the very great attention paid by the mining industry to safety measures and safety training, accidents happen and men are killed and injured," he said. "Strenuous efforts were made to rescue the men, but due to the intensity of the underground fire and the extent of the falls of ground, it was evident by Saturday morning that they had lost their lives."

"I should like to thank all those concerned for their unstinting efforts in trying to rescue them." — Sapa

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**Table of Papers**

<table>
<thead>
<tr>
<th>No.</th>
<th>Author</th>
<th>Title of Paper</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Francis Wilson</td>
<td>International Migration in Southern Africa</td>
<td>R2,00</td>
</tr>
<tr>
<td>2.</td>
<td>OUT OF PRINT</td>
<td></td>
<td></td>
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<tr>
<td>3.</td>
<td>Dudley Horner</td>
<td>African Labour Representation</td>
<td>R1,50</td>
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<tr>
<td>4.</td>
<td>OUT OF PRINT</td>
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<tr>
<td>7.</td>
<td>J.B. Knight</td>
<td>Labour Supply in the South African Economy</td>
<td>R2,50</td>
</tr>
<tr>
<td>8.</td>
<td>Mike Morris</td>
<td>Apartheid, Agriculture and the State: The Farm Labour Question</td>
<td>R2,50</td>
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<tr>
<td>9.</td>
<td>Nigel Bloch</td>
<td>The Demand for African Technicians</td>
<td>R2,50</td>
</tr>
<tr>
<td>10.</td>
<td>David Selvan</td>
<td>Housing Conditions for Migrant Workers in Cape Town</td>
<td>R3,50</td>
</tr>
<tr>
<td>11.</td>
<td>Sheila Niven/Charles Simkins</td>
<td>A Study of Consumer Patterns in Hanover Park in Cape Town</td>
<td>R1,50</td>
</tr>
<tr>
<td>12.</td>
<td>Johann Maree/Janet Graaff</td>
<td>Residential &amp; Migrant Workers in Cape Town</td>
<td>R4,00</td>
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<tr>
<td>13.</td>
<td>Norman Reynolds</td>
<td>Rural Development in Botswana.</td>
<td>R1,50</td>
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<tr>
<td>14.</td>
<td>Johann Maree/Judith Cornell</td>
<td>Sample Survey of Squatters in Unibell</td>
<td>R1,50</td>
</tr>
</tbody>
</table>

(FORTHCOMING)
Cause of fire at mine probed

KLERKSDORP — An investigation was being conducted into the cause of the underground fire at Vaal Reefs which killed 41 miners, the mine's manager, Mr R. G. Williams, said yesterday.

The fire broke out on the 73-level of the shaft on Friday, affecting more than 300 workers.

"Burnt pillars causing rock-falls made the tasks of the mine rescue teams difficult," Mr Williams said. "Because of the dense smoke, excessive heat and poisonous gases, it became so unsafe that we've decided to seal off the affected area."

It had been a difficult decision, but there was "no chance of anybody surviving this disaster," he said.

"I doubt if the area where the missing workers are will be entered within the next two weeks."

The chairman of the mine, Mr D.A. Etheredge, expressed condolences to the miners' families.

"Despite the great attention paid by the mining industry and individual mine managers to safety measures and safety training, accidents happen and men are killed and injured," he said.

"Strenuous efforts had been made to rescue the trapped men, but due to the intensity of the fire and the extent of the falls of ground, it was evident by Saturday morning the men had lost their lives," Mr Etheredge said.

"I should like to thank all those concerned, from the general manager through to the proto teams, for their unselfish efforts in trying to rescue these men."

— SAPA
Miners' families won't starve

By SIMON WILLSON

THE BEREAVED families of the 41 miners killed in Friday's underground fire at the Vaal Reefs gold mine are to receive benefits proportional to the miners' earnings. Widows and their children will receive 75% of the combined value of their husbands' wages and the free amenities to which the miners were entitled.

The money will be paid monthly as a life pension to the widows, and to their children until they reach the age of 18. The identities of the miners will be released as soon as the mine has established that telegrams sent to the families have been received.

@ See Page 4

1. Goldmi

It appears that the 1976-1977 data can be very easily into two main phases (with one possible further subdivision). (See Graph 1 on page 10).

1.1 From 1948 to 1961 there is a sharp and unambiguous rising trend in employment. The average number of workers in service climbs from 341 324 (1948) to an all-time peak of 465 688 (1961), an increase of 36.4 per cent — though this does include declines during 1951-52-53 and in 1957.

1.2 After 1961 (and through to 1976) the trend is less sharp but unambiguously falling; however within this overall declining phase the downward trend is clearest to 1967 and thereafter there is some evidence of fluctuation about a relatively stable trend. (It is just possible that when the full 1977 figures are available they will be compatible with the view that during the last decade there have been increasing fluctuations about a slightly rising trend). 1

1.3 At present we lack a full explanation of why goldmining employment should have fallen into such clearly-defined phases, but there are a number of points that can be made.

1.3.1 It is worth remembering that employment has supply as well as demand determinants. Thus at any time employment may be below the levels that the industry requires. In fact during our period this appears to have been the case for most of the time (speaking very loosely) apart from the decade of the 1960s. However the labour shortfalls of the 1950s (put at 69 000 labourers in 1952) 2 do not really complicate the matter in hand. Employment was expanding from 1948 and the reported labour shortages merely tell us that the expansion would have been faster. Moreover by 1958-59 the shortages were disappearing (as Southern Africa moved into a longish recession) and employment was able to attain desired levels. 3 The true trend is
**Inquiry into mine disaster**

KLERKSDORP — The cause of the underground fire at Vaal Reefs gold mine here at the weekend, which killed 41 miners, was being investigated, the manager of the mine, Mr. R. G. Williams, said yesterday.

The fire broke out on Friday afternoon on the 73-level of the shaft, affecting more than 300 workers.

"Burnt pillars causing rock-falls made the tasks of the nine rescue teams more difficult," Mr. Williams said. "Because of the dense smoke, excessive heat and poisonous gases, it became so unsafe that we've decided to seal off the affected area."

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<table>
<thead>
<tr>
<th>Averge rates of growth per annum.</th>
<th>Projected and actual (and the second)</th>
<th>Present levels of employment.</th>
<th>The following table (34. 35): the first two parts of the material.</th>
<th>Data 1970-76.</th>
<th>A comparison of employment projections, 1970-80, with actual employment.</th>
</tr>
</thead>
</table>

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4.3


is not primarily a decline in the demand for labour.
5 killed, 86 injured in Welkom mine accident

WELKOM — Five black miners were killed and 86 injured in an accident at No 4 shaft of the President Brand gold mine, near Welkom, early on Tuesday morning.

A cage containing 120 miners was descending the shaft when it collided with a timber truck protruding into the shaft at 46 level 1400m underground.

Fifty of the injured men were discharged from hospital after treatment. Three of the 38 men kept in hospital were said to be in a serious condition.

Rescue teams recover all the miners' bodies, but the names of the dead will not be released until their next of kin have been informed.

A spokesman for the mine said yesterday that the shaft had been cleared and operations were back to normal. An investigation was under way to determine the cause of the accident.

The rate that we are at is very low, enough to make labour-intensive wage systems make it difficult to predict a wage increase in minimum wage mechanism, Caborer, an independent labour economist, said.

The system of wages in South Africa is now determined by a combination of collective bargaining, company policy, the expectation of their units on the ground, the pressure for jobs and the expectation of the market.

Both contractors and clients face the same problems in getting a wage system that is competitive and competitive, he said.

The problem of developing a labour-intensive construction unit, the unit within the construction unit, is one that can do then be addressed nationally.

The aim is to develop a labour-intensive construction unit, the unit within the construction unit, is one that can do then be addressed nationally.

South Africa is a significant contributor to the world's economy, given the history of capital-intensive and incompatible methods, has the potential to be a labour-intensive construction unit.

The success story of the small economy.

Structural improvements by themselves will enable the poor majority to improve their standard of living, but if they are coupled with technical and market initiatives, the potential for growth will be enhanced.

The demonstration programme, in the initial stages of its implementation, has shown that a smaller group can have a significant positive impact on the economy.

The demonstration programme, in the initial stages of its implementation, has shown that a smaller group can have a significant positive impact on the economy.

The success story of the small economy.

The small economy's need to return to good economic and social stability is not to remain a potential present or future, but to move into the future and be sustainable.

The success story of the small economy.
In these facts to do with the overall expansion and the shift
raphical location of the industry (involving the absolute
a tions of historic centres of gold production) must lie the
ntial explanation of the shape of the graph of employ-
ics in the post-war period. In the year after the maximum
ment was reached (1962) the President of the Chamber of
ferred to the attainment of 'full production' by the newer
He said that a corollary of this was '... a decrease in
ent', and continued, 'The industry appears, therefore, to
sed its peak as an employer of labour ... it is likely that
stry's requirements of labour will continue to fall from
'. His prediction was correct in general terms. To
the explanation would require a technical description of
re of 'development work' (contrasted with work at the stope-
contact with the gold reef) and (presumably) of the different
'development work' required when a mine is at different
its development. However this is beyond us now.

There is also a good deal more that could be teased out of
the data - since we have information on tonnage of ore milled, gold
output, ore-grade, tonnage milled per worker per year and gold output
per worker per year (apart from revenue, cost and profit variables).
We shall not attempt to model the relationships between these variables
in this paper but a few points of interest may be included here.

1.3.5.1 Gold output rose with only one interruption (1967)
from 1952 to 1970 - though the real surge was over by 1965.
Output climbed from 368 metric tons at the start of this period
to 950 metric tons in 1965; it took the next 5 years to reach
1 000 tons (the all-time maximum).

1.3.5.2 Underlying this increase in production of course was the
the development of the new fields and the increase in the number
of productive mines (from 43 in 1950 to 60 in 1962). This showed
up in increased tonnages of ore being milled and treated every
year - tonnages which moreover were of average higher grade
throughout most of the 1950s since the newer mines in general had
a higher grade than the average of the established industry.
Proto team to search shaft for 41 bodies

By Kevin Murray

A special proto team will inspect the death shaft at Vaal Reefs Gold Mine next month to see if the bodies of 41 miners can be recovered.

The miners were trapped by a huge blaze in the mine's Number Eight shaft early this month. A spokesman for the Anglo American Corporation said the proto team was waiting for the shaft to cool after the blaze, which has been burning for 16 days. Production at Vaal Reefs Gold Mine, near Orkney, had not suffered because of the fire, he said.

"Temperatures in the shaft are now at about 80-70 deg C, even though the fire is virtually out," said the spokesman.

It could be two to six weeks before the shaft is cool enough for the proto team to explore it. An inquiry into the deaths will be held next month.

The miners were trapped in the shaft more than 2 km underground after the fire had broken out on December 1. More than 220 miners were treated at West Vaal Hospital after being affected by fumes.

More than R1 million will be paid in compensation to the families of the dead miners.

The Anglo spokesman said that the proto team would probably be greeted by a scene of desolation.

"The shaft was gutted and when timber props were weakened by the flames there were extensive rockfalls," he said.

It would be some time before the shaft could be reopened.

Rather surprisingly, African members of the liaison committee did not participate in selecting the chairman of their committee in 81.9% of the participating organisations. On the other hand, 79.1% of the respondents reported that African members of the liaison committee were elected rather than appointed by management. However, in only 16.6% of the firms could candidates be nominated without any restriction, for example, as to age or seniority. A representational spread from different departments was required by 78.1% of the respondents, while 46.2% required service (seniority) qualifications and 27.3% required a certain age limit. Voting was usually by means of ballot papers (57.1% of the respondents) or by a show of hands (33.4% of the respondents).

About 63% of the respondents reported that their liaison committees were elected for a period of one year while nearly 28% recorded a two-year period of office. In most instances, 72%, regular monthly committee meetings were held, but a further 12% met every two months and 5% quarterly.

There were 284 organisations which responded to a question as to why they had preferred a liaison to a works committee. The majority of 147 (nearly 52%) gave as their reason that the liaison committee was an 'anti-polarisation' device conferring benefits such as better guidance by management and prompt solution of problems, thus serving both parties' interests and improving two-way communication. In a further 38 instances (about 13%) either the liaison committee

32. Ibid, p.20.
Fire is still big hazard in mines

The mining industry has achieved considerable success in countering fire hazards underground and in the past few years has reduced its fire damage costs by several million rands a year.

However, underground fires still remain one of the most serious and costly problems the industry has to overcome, says the Chamber of Mines in its latest monthly report.

"About 160 fires occur in the mines each year," says the chamber. "This is equivalent to three a week, or about one every second working day. About 20 percent of these are responsible for most of the damage."

Most of these serious fires occurred in stoping areas where large amounts of timber were used for roof support.

CARELESSNESS

If these timber packs were unprotected and a fire started, it generally grew in intensity so quickly and spread so rapidly that it was usually impossible to take effective action before the situation became uncontrolable.

According to the chamber's environmental engineering laboratory, the most common causes of serious fires are:

- Carelessness with igniter cord, or because of failure to wet down adjacent timber properly
- Electric-cable or switchbox failures
- Carelessness with disposal of cigarettes
- Scraper ropes rubbing against timber
- Careless use of oxy-acetylene cutting torches where the area has not been wet down
- Much of the success the industry had in cutting down fire damage costs had been achieved by reducing the above causes, the report says.

The following comparison can be made:

The following comparison can be made:

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1972</td>
<td>716</td>
</tr>
<tr>
<td>1973</td>
<td>299</td>
</tr>
<tr>
<td>1974</td>
<td>000</td>
</tr>
<tr>
<td>1975</td>
<td>258</td>
</tr>
</tbody>
</table>

TABLE 28: TECHNICAL CHANGE AND BASE METALS, 1974

2.3.4. It is clear from a comparison of the following paragraphs that the higher cost and increased exposure to damage from fire, as we have already noted, bear directly on base metals, labour requirements, and the cost of production. Either copper or asbestos is above the price.

(2000) Can, while not increasing its mining and refining capacity, as we have already noted, bears a direct relationship to fire safety and production costs. Copper prices are forecast to increase at 190 per cent (1970) and to 122 000 by the year 1980. During the 1970s and to 122 000 by the year 1980, asbestos prices are forecast to rise at 30.0 per cent (1970) to 26.5 per cent (1980) and above.
SA miners must fight 160 fires each year

South Africa's mines fight about 160 fires each year—an average of one every second working day—reports the Chamber of Mines in its latest news magazine.

Although the mining industry has managed to cut its fire damage costs by millions of rands a year, underground fires remain one of the most serious and costly problems facing the industry.

About 20 percent of the 160 fires each year are responsible for the major part of the damage, and occur in stoping areas where large amounts of timber are used for roof support.

The most common causes of fire are:

- Electric cable or switch box failures
- Cigarettes
- Scraper ropes rubbing against timber and
- Careless use of cutting torches
Mine victim had a premonition

West Rand Bureau
A Carletonville mine stopper and father of seven who told his family to be happy on Christmas Day because he had a feeling it was the last they would all spend together was reluctant to go underground on Wednesday and within hours he was fatally injured in a pressure burst.

Mr George Rowan (40) died seconds after rescuers reached him in a stope at No 2 shaft, 2,100 m below the surface in the Doornfontein gold mine.

His oldest daughter, Mrs Charmaine O'Brien (18), said yesterday that the family spent a "wonderful Christmas together" at the Robinson Lake, Randfontein.

"My father told us all to be very happy because he had a feeling it was the last the family would all spend together. He said my mother need not worry as we would be well provided for," said Mrs O'Brien.

"We did not take him seriously and thought he was joking, we told him not to talk nonsense and laughed.

His son Vincent (12) said his grandmother, Miss Kolie de Bruyn (Mr Rowan's mother-in-law) also said she had a feeling something untoward was going to happen but she did not know what.

"When she heard the bump of the pressure burst at her home in Carletonville on Wednesday morning she gasped and said "Something has happened to George".

Mr Rowan's brother-in-law, Mr Sarel de Bruyn, said Mr Rowan had felt uneasy about going to work on Wednesday. He had said he would go to the mine but was not going underground. But he changed his mind and was fatally injured.

He leaves his widow Poppie (30) and seven children.

Bereaved family. At the back are Freddy (17) and his married sister, Mrs Charmaine O'Brien. In front of them are Vincent (12) and Maureen (13) and in the foreground is Sharon (7). Gerald (15) and Stephen (16) were out with their mother when the picture was taken.

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should be increased

Seconded: Mr. J. Sang.

kinson
Treasurer: Mr. J. Sang
(Vice: Miss P. le Roux)
ols' Secretary: Miss B. Keeson
available for reelection)
er, Mrs. M. Mezzabotta, Mr. Thom
ing, Dr. R. van Stekelenberg.


8. Any other business/Algemeen.
Three miners still missing

Rescuers have recovered the bodies of three black mine workers trapped 2,100 m underground, at Doornfontein gold mine near Carletonville. Three men are still missing.

Professor Dubow originally trained as an architect but moved to the Michaelis School where he won renown for his lectures on the history of art, and became Director of the School in 1971. Under his leadership the School has been vibrant with new activities.

SOUTH AFRICA/DIE KLASIEKE VERENIGING VAN SUID AFRIKA

CAPE BRANCH/ WES-KAAPLANDSE TAK

... attend the ANNUAL GENERAL MEETING which will be held 7.30 p.m. in Beattie Building (Room 1) University of Cape Town. This business meeting will be by a lecture by...

BOW: Director of the Michaelis School of Fine Art, U.C.T.

... The antiquities of JERUSALEM (illustrated by slides)

AGENDA for the AGM/SAKELYS vir die Algemene Jaarvergadering

1. Personalia
2. Minutes of the AGM held on 7th September 1977/Notule van die Jaarvergadering van 7 September.
3. Chairman's report/Verslag van die Voorsitter.
5. Financial statement for the year ended 10th September 1978/ Finansiële verslag vir die jaar geëindig 10 September.
6. Motion: The Western Cape Branch requests the chairman of the Classical Association to transmit to the biennial conference of the Association the proposal that the portion of the subscription remitted to the local branches for each registered member should be increased from 50 cents to R1.

   Proposed: J.E. Atkinson; Seconded: Mr. J. Sang.

   Huidige lede: Voorsitter/Chairman: John E. Atkinson
   Sekretaris/Tesourier//Secretary/Treasurer: Mr. J. Sang
   (Vice: Miss P. le Roux)

   Sekretarisse vir die Skole/ Schools' Secretary: Miss B. Keeson
   (not available for reelection)

   Committee members: Dr. S. Bruwer, Mrs. M. Mezzabotta, Mr. Thom, Mr. P. Collins, Miss S. Armstrong, Dr. R. van Stekelenberg.


8. Any other business/Algemeen.
MINING - Accidents

19-1-79 - 1-11-79

212
1 killed, 2 others trapped in mine

A man has been killed in a rock burst at the Vaal Reefs gold mine at Orkney, in the Western Transvaal and men are still trapped.

A spokesman for the mine said the burst — at 12.15 am today — could be described as a "minor seismic event."

It came on the boundary of the No 1 and No 2 shafts and the man, killed, who has not yet been identified, died in a dump at No 2 shaft.

The spokesman could not say how many miners were trapped as a result of the burst.

The number of men trapped underground is feared to be high.

"A number of miners are trapped in No 2 Shaft," an Anglo American spokesman said.

A14.
Three miners killed in burst

JOHANNESBURG — Twenty-miners who were trapped by a rockburst at the Vaal Reefs gold mine near Klerksdorp yesterday have been rescued.

Three miners were killed in the pressure burst which occurred at noon.

The trapped miners, brought to the surface by rescue teams, suffered minor injuries — Sapa
Three die, 20 hurt in Orkney mine rock burst

By Mike Cohen

Three miners were killed and 20 injured in a rock burst at Vaal Reefs gold mine at Orkney yesterday.

The blast occurred with an estimated 3.6 on the Richter scale. The blast happened on the workings of No 1 and No 2 shafts.

The injured were brought to the surface almost immediately. They were taken to the mine hospital where they were all treated and discharged.

The body of the last miner, missing for seven hours, was found last night.

He was changing after his shift when the section collapsed and had been sitting by himself.

Mine overseers, Mr Willem du Plessis and Mr Christo le Grange, who led the rescue operation, said the miner would have been saved had he been sitting one metre to his right. He was buried by the rubble.

While rescue teams were looking for the last miner, the area was shaken by another ground movement which, according to mine officials, was about the same strength as the first.

The rescue teams were at the 68th level during the second shake. Two months ago, at the No 8 shaft, 41 miners died in a blaze.

We do not know the source of these diamond projections nor of the projected platinum growth rate of output.

2.1.3 For the 6 base-metals and base-non-metals that he distinguishes Plewman disaggregates the projections into exports and domestic requirements. For all six he derives export figures from the report of the Commission of Enquiry into the Export Trade of the RSA (Reyners Commission) tabled in 1972.

Export figures were given in the report which Plewman interprets as export targets ("the Commissioners have included an estimate in money terms of the future rate of exports of minerals that is required if the Republic is to reach its targets for foreign exchange earnings"). These targets are taken as projections and "converted ... to physical units at 1970 prices". To these export figures are added estimates of domestic requirements. In the case of coal two projections are made: the first assumes the domestic demand for coal will grow at 5 per cent per annum, the second at 8 per cent. In the cases of the other five minerals, the two alternative projections of the growth of domestic demand are based on 3 per cent per annum and 5 per cent.

2.1.4 In 1970, 85 per cent of total employment in base-minerals was covered by the listed six minerals. For the remaining minerals (tin, salt and quarrying in the main), Plewman assumes that output will grow at the same rate as the average rate for all minerals including gold, platinum, and diamonds.
Three blacks have appeared in the Vierfontein Magistrate’s Court in connection with an allegation of culpable homicide arising from the death of 41 black miners in an underground fire at the Vaal Reefs gold mine last month.

Two whites have been summoned to appear in the Vlakfontein Regional Court nearby on February 12 in connection with the disaster.

This was disclosed today by Colonel M van der Merwe, CID chief for the Northern Free State.

He said the three blacks, who were accordingly appeared in court last week and were remanded to February 9, were two Ciskeians, Mr Patrick Mgqema (25) and Mr Mazwi Bantu Dyamaya (19), and a Transkeian, Mr Amos Sithole (34).

Details about the summoned whites could not be released, the Colonel said.
Miner plunges to his death

A MINER, Mr J H Burger, died in an accident at the Loraine Gold Mine in the Free State yesterday after falling down an ore pass in the mine's Number Three shaft area.

Mr Burger, a stoper at the mine, leaves his wife and four children orphaned.

In the Western Areas Gold Mine yesterday, a fire raged in a small isolated area 2,000 m below the surface.

Mr W D Rowe, of Johannesburg Consolidated Investments, said yesterday morning that the fire was on the face in the isolated area and was expected to affect production.

— Sapa
41 mine deaths — two in court

By Mike Cohen

VLAUGMBOOM — Two employees of the Vaal Reefs Gold Mine in Orkney today pleaded not guilty to a charge of culpable homicide before the chief magistrate of Bloemfontein in a case which is a sequel to the death of 41 mine workers.

Mr Frans Wolmarans, a miner and Mr D. Robin, a shift boss, are appearing in the Vlaugmbboom Regional Court on one count of culpable homicide and five counts of contravening the Mine and Works Act.

Mr Wolmarans pleaded guilty to two of the charges under the Act, the first for allowing somebody not qualified to handle explosives and the second for allowing a person who was not the holder of a blasting certificate to press explosive into a shot hole.

"He pleaded not guilty to all other charges." Mr Robinson pleaded not guilty on all counts.

"WITHDRAW"

One of the charges, that of allowing a person who was not the holder of a blasting certificate to place explosive on a detonator, was withdrawn by the State.

The court heard that the two men were in control of their capacity, as miner and shift boss respectively, in the 73rd stope of the No. 5 shaft of the Vaal Reefs Gold Mine on December 1, last year.

A fire in the stope caused the deaths of 41 miners working in the area at the time.

Seventy-two miners managed to escape the inferno through four different entries.

Mr. Napoleon Ober, manager, of the south section of the Vaal Reefs mine, was called to describe the workings of the shaft which was ravaged by the fire.

OPEN FLAME

He showed a scale model of the men who worked in the area. He said the height of the area was approximately 110 cm.

An open flame would have been enough to ignite the wooden slopes if it had a right tempera-

Mr. Ober said he was

To Page 3, Col 1
Mine fire trial told of shooting threat

By INGRID NORTON

A WITNESS told the Vljoenskroon Regional Court yesterday that two employees of Vaal Reefs gold mine, charged with culpable homicide, had threatened to shoot one of his colleagues if he talked about the circumstances of the fire that killed 41 miners.

Mr Frederick Christiaan Rossert Hurn, a miner, and Mr David Johannes Bosch, a shift boss, have pleaded not guilty to the main charge of culpable homicide. They are also charged with five counts of contravening the Mines and Works Act.

Mr Patrick Ngqema, a mine assistant, told the Chief Magistrate of Bloemfontein, Mr G J V Jordaan, that he had been taught not to light a match near explosives unless experts were around.

He had never had any practical experience in handling explosives. He had only been taught how to press the charge home with a stick and how to connect the igniting stick.

Another mine assistant, Mr Amos Sithole, told the court that the day the fire broke out, December 1 last year, he went underground for the first time since he had worked at the mine.

He said he had received instruction from Mr Ngqema only that day on how to handle explosives and that although he had had theoretical training from the mine he had never handled lighted explosives.

Mr Hurn and Mr Bosch had never been present when the mine assistants were handling the explosives.

Mr Sithole said that on the day of the fire he and Mr Ngqema argued about whether they should light a wet flex. Mr Ngqema said they should as it would not burn for long.

The flex caught fire and they failed in their attempts to put it out.

Forty-one miners were trapped and died in the blaze that followed.

A third mine assistant who witnessed the fire, Mr Mzwabani Xulu, said that after the fire the assistants had gone to the mine station and reported the incident to the mine captain, Mr J van Zyl, of their own free will.

He said he had heard the accused tell Mr Ngqema not to tell anyone what had happened on the 73rd level or he would be shot.

The hearing continues.
By Michael Cohen, Staff Reporter

VILJOENSKROON — The only way four miners assistants could have been working with explosives on the fatal day in the No 8 Shaft of the Vlaa Reefs gold mine on December 1 last year was by breaking the lock on the explosives box.

This evidence was given today by Mr Frederick Hurin, a miner, at his trial before the Chief Magistrate of Risemaal before the Vljoenskroon Regional Court.

Mr Hurin and Mr David Bosch, a shift foreman, have pleaded not guilty before Mr G J V Jordaan on a charge of culpable homicide resulting from the death of 41 mine workers.

Mr Hurin told the court that he could not see any way that the men under his charge were not scheduled to be explosives workers, and that they should have been working with explosives. He said he had heard that the explosives box was opened by others.

"I cannot see that these men would have done such a stupid thing as to light a roll of igniter cord. They have been properly trained by me," Mr Hurin said.

Mr Bosch, who told him of the fire and smoke coming from the mine, said he could not be so stupid. He was surprised, Mr Hurin told the court.

He told of a workload which he regarded as being excessive. He said he had six working faces and was required to work four of them.

Mr Hurin said that, if he exceeded his monthly quota, he got a bonus. There was also the chance of winning the prize for the top miner in the shaft, which he had done on several occasions.

He said he had informed management that his workload was excessive.
He concluded that ninety per cent of the African homes are built of mud and that the majority of the African population live in these conditions. The figures are alarming, and the lack of proper planning and organization is evident. The African settlements are often neglected and the amenities are inadequate. The lack of proper sanitary facilities and water supply is a serious problem. The living conditions are cramped and unhealthy. The conclusion is that the African settlements are in dire need of improvement. He recommended the establishment of a proper system of planning and organization to tackle this problem. The government should take serious action to improve the living conditions of the African population.

Accused miner to appear:

By INGRID NORTON

As expected, the accused miner, who was arrested last week, will appear in court today. The miner, Mr. Smith, is facing charges of assault and theft. He is alleged to have attacked a police officer and stolen a car last week. The incident took place in a remote area, and it is believed that the miner was under the influence of alcohol at the time. The police are investigating the matter further. The trial is scheduled to start tomorrow, and it is expected to attract a lot of public interest.

The Board said, was an old location. There were no grounds for an...

......./Ru

......./Council
Burning cord led to 41 deaths

By Mike Cohen

Economics I A.

Tutorial Exam
Miners plunge to death

GERMISTON — Two miners died here on Monday when the cable of the cage in which they were descending a mine shaft, broke.

A third miner, Mr J. J. Botha was rushed to hospital here with a broken leg. He is in a satisfactory condition.

One of the dead men has been identified as Mr R. D. Mels of Brakpan. The name of the other miner is not yet known.

The accident happened at the Balmoral gold mine.

— (Sapa)
Miner sentenced in death case

VILJOENSKROON — The miner in charge of a shift on Vaal Reefs gold mine where a fire killed 41 people last December was fined R700 (or 350 days' imprisonment) in the Regional Court here yesterday.

Mr Frederick Hurn, 35, who has won several awards at the mine, was found guilty of culpable homicide and of contravening four regulations under the Mines and Works Act.

A shift boss accused with Mr Hurn, Mr David Bosch, 47, was found not guilty on all charges.

The chief magistrate of Bloemfontein, Mr G J V Jordaan, found Mr Hurn had been negligent in allowing unqualified assistants to handle explosives on No 73 level of No 8 shaft at Vaal Reefs mine near Orkney.

He found that after supervising his shift of 116 people in No 8 shaft, Mr Hurn had gone to eat his morning sandwiches. While he was away two assistants were left to make up fuses. An argument developed between them in which one claimed some ignitor cord was wet.

His colleague lit a short piece of the cord to show it was usable and a fire started. When neither of them could extinguish it, one threw a roll of cord at the flame to douse it. The roll ignited and 41 men died in the resulting fire.

Mr Jordaan fined Mr Hurn R600 (or 300 days) on the main count of culpable homicide and R100 (or 50 days) for contravening Mines and Works Act regulations.

Mr P A Vorster (for Mr Hurn) said his client had won three awards as a miner at Vaal Reefs.

"In 1975 he won a watch for having the safest working area on the mine and had also qualified for bonuses on more than 10 occasions for working accident-free shifts."

Mr Hurn, a father of three, had suffered from a nervous complaint and drinking problem since the incident. His contract had been terminated by the mine and, although he had not lost his job, he had suffered financial losses — SAPA
Death of 41 miners: Hurn is guilty

Staff Reporter

A MINER was fined a total of R700 (or 350 days) in the Viljoenskroon Regional court yesterday after being found guilty of culpable homicide and of contravening four regulations under the Mines and Works Act.

Mr David Bosch, a shift boss appearing with Hurn under the same charges, was found not guilty.

Frederick Hurn, 35, has been employed at the Vaal Reef gold mine near Orkney as a miner for 12 years. On the morning of December 1 last year, a fire broke out in the mine, trapping and killing 41 miners.

The magistrate, Mr G J V Jordaan, found Hurn had been negligent in allowing unqualified blacks to handle explosives. On the morning of the fire he found Hurn had left 18 shift workers on the 73rd level and had gone to have his morning tea break.

While he was away, the three men who were in charge of fixing the fuses, noticed that the blasting flex was wet. One man cut off a piece of the flex and tried to light it. It caught fire and he attempted to put the flames out by hitting it with another role of flex. That also caught fire and the detonators exploded.

The magistrate fined Hurn R1000, or 300 days', on the main count of culpable homicide; and R150 or 50 days' for contravening the Mines and Works Act.

In mitigation, Mr P Vorster for the defence, said Hurn had won three safety awards and had "qualified for bonuses several times for his skill in handling fire."

He said since the fire, Hurn had suffered from a nervous complaint.
Doctor hits out over slackness on mine hazards

By Sieg Hannig, Labour Reporter

A leading medical man has attacked shareholders, the Department of Mines, mine managers and the Mineworkers’ Union for tolerating malpractices and omissions which aggravate mining hazards.

Dr J M Barry, acting head of the Department of Community Medicine at Witwatersrand University, who served the mining industry for 27 years, told a symposium of the Institute of the Study of Man in Africa last night that

1. A mine manager, when asked about men working at a potentially fatal wet bulb temperature of 33 deg Celsius “just shrugged his shoulders and said ‘we get away with it’” — and the inspectorate (of the Department of Mines) was probably aware of this.

2. The Mines and Works Act made no mention of noise or dust or protective goggles — in spite of the widespread risk of hazards such as noise which made Dr Barry’s brother 30 percent deaf in 15 years as a developer.

3. Pressures imposed by production targets sometimes led to workers being pushed into hazardous situations.

4. The average black miner had no change of underground clothing and washed this only once a week because it would not dry in time for the next shift. He said shareholders should assume responsibility for the health of miners instead of looking only at their dividends.

It was strange that the Mineworkers’ Union had seldom taken an interest in members’ health and safety.
Lost in mine for 22 days

By Terry Baren

A miner is recovering in Impala Platinum's hospital in Rustenburg after spending 22 days lost and without food underground.

Mr. Myxum was brought to the surface by a team of miners who found him in a worked-out section of the mine. He was fully conscious and was taken immediately to the hospital where he was treated for shock. He complained that he felt weak but had no injuries.

His ordeal began on February 27 when his miner's lamp failed while working on number three level. After groping around in the darkness for hours he found a pool of water and kept himself alive on that for 22 days.
Lost for 22 days in mine

John Mysmina, 35, was 'in remarkably good shape' after his ordeal and would be discharged soon.

His ordeal began on February 27, when his miner's lamp failed while working on No 3 level. After groping around in the dark for hours he found a pool of water and kept himself alive on that for 26 days.

Officials first became worried when he failed to turn up for his shift on February 28. A search was conducted in the mine, hostel, and his family was approached in an effort to find out if he had returned home.
Miner was lost underground

RUSTENBURG — A miner is recovering in the Impala platinum mine hospital here after spending 22 days lost without food underground.

A hospital spokesman said yesterday Mr Frans Mysimini, 35, was in "remarkably good shape" after his ordeal and would be discharged soon.

Mr Mysimini was brought to the surface by a team of miners who found him in a worked-out section of the mine. He was fully conscious and was taken to the hospital where he was treated for shock. He complained that he felt weak, but had no injuries.

His ordeal began on February 27 when his miner's lamp failed while working on number three level. After groping around in the dark for hours he found a pool of water and kept himself alive for 22 days.

Officials at the mine became suspicious when Mr Mysimini failed to report for duty on February 28. They checked the mine's hostel and questioned villagers nearby.

Letters were later sent to his family inquiring whether he was at home. — SAPA.
Miner lost underground for 21 days

WHILE the mine management fight the Press away from his bedside an emaciated Mr Frans Masemani is recovering from his 21 days lost underground.

Union Corporation, owners of the Impala platinum mine at Rustenburg, where the black miner survived for three weeks without food, said this week he had a memory blank about the period and so could not see the Press.

All pressmen have been turned away from the black miners hospital on the Bafokeng South mine. But the Tribune got through to see the emaciated Mr Masemani (27) lying in a private ward with a drip feed in his arm.

This was 36 hours after he had been brought up to the surface on Wednesday morning. He seemed well on the road to recovery.

Whether because he had just been woken or as a result of his experience, he seemed a little confused, but conscious of his surroundings.

He politely sat up to speak after a black orderly explained the Tribune was there to see him. At that moment the white hospital supervisor rushed in and accused the reporter of trespassing, gave him 30 seconds to leave.

The miner's emaciated condition confirms at least one fact in the confused story — that he was trapped a long while without food. Union Corporation has not even gone this far in its official statement which implies the mine itself was in no way responsible for the incident.

They said the miner last worked on the Bafokeng North mine on February 28, when he returned to the surface. This was confirmed by the mine's routine check system — his work card and lamp were handed in.

"It was assumed he left the mine after that date,"

By Peter Fabricius

come up. Often miners took the wrong cards.

According to this man, another black miner had been lost underground for three days about three weeks ago.

He said all the miners had been called to the surface before a rock face was blasted.

No-one noticed one black miner was still underground. The blast went ahead and it was only on Sunday that he was missed.

A search party went down and found him immediately — battered and bruised.

The white miner said it hadn't been established whether the black miner had sustained his injuries.
11. May 22. Can we survive an education system until the year 2000?


9. May 6. A history of the education system of South Africa -- Dr. G.

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Section 2: Education


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Section 1: Mining

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Section 1: Macdonald

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Section 2: Economics

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Section 3: Education

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Introduction to South Africa

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Current Problems and Future Projections

Introduction to South African Studies

University of Cape Town
Mineworker tells of underground ordeal

JOHANNESBURG -- Mineworker Mr Frans Masemane, lost underground for 21 days in a Rustenburg platinum mine, yesterday tried to describe the experience.

At the Impala Mines hospital Mr Masemane, speaking through an interpreter, said he did not know what had happened to him but "something made me run back to the mine".

"Everything went blank after that and I walked and walked without knowing where I was going."

The small man felt his way in the dark along mine tunnels with a stick to avoid holes. It was only his second day underground and he had just come out of training school.

"I walked and tapped, walked and tapped, walked and tapped," he said. In the darkness, he made his way to a disused section of the mine about 700 metres from the main shaft -- only 20 m from the surface.

He found a pool of water and lay there until he was discovered there by a rescue team.

According to a mine spokesman, he had heard the team talking over their walkie-talkie radios as they fanned out through the tunnels to look for him.

"Here I am. Come and get me," he had shouted. -- Sapa
New vaccine is now available in SA

MARAIS MALAN, Science Editor

A new United States developed vaccine against the pneumococcal micro-organism, main cause of an often deadly form of pneumonia, has been released in South Africa.

Doctors in South Africa have helped to establish the efficacy and safety of the vaccine — it confers at least 80 percent immunity — in a massive clinical trial on 12,000 black miners, a group in which the pneumonia incidence is particularly high.

The vaccine is active against 14 strains of pneumococci, including those strains that have lately developed resistance against some antibiotics.

"The belief that pneumococcal pneumonia is a killer disease of the past is a fallacy," says Prof Hendrik Koornhof, head of the Department of Microbiology at the SA Institute for Medical Research and the University of the Witwatersrand.

"It is a common cause of death, particularly in the elderly and certain other people who are at risk." He does not recommend mass immunization but lists several categories of people who should be protected against the organism:

- The elderly, particularly those with chronic heart or lung ailments.
- People, though young and healthy, who are at risk on account of their way of life. This includes miners and other workers who live in close proximity to compounds where pneumococci has been a serious problem at times. This applies in a lesser extent to the Defence Force, boarding schools, orphanages and other institutions where many people are herded together.
- Doctors and nurses who work in hospitals where resistant pneumococci have been isolated.
- Children admitted to hospital wards where pneumococcal infections are treated, particularly if their stay is prolonged.
- People with disorders of the spleen or whose spleens have been removed, are particularly prone to serious pneumococcal septicaemia.
- Children in developing countries who are prone to middle ear deafness caused by the organism.

The vaccine will not solve the problem of multi-resistant pneumococcal infections which are found mainly in babies and the vaccine is not as effective in them as in the over-three-year-olds, says Prof Koornhof.

"But our experience is that it is a good vaccine which confers at least three years' immunity — and the indications are that as time goes on we shall find that this immunity is long-lived."

Pneumonia incidence figures are not available for South Africa but in 1976 a mining group reported a rate of 23.4 per 1,000 of its workforce with a 1.8 percent mortality rate among the cases reported.

In the United States more than 55,000 deaths from pneumonia were reported during the same years.
Rockfalls kill three miners at Vaal Reefs

By Sigie Hamag, Labour Reporter

Three black miners died, three were trapped, and others are missing after an earth tremor set off a number of rockfalls at the Vaal Reefs Gold Mine near Klerksdorp today.

Five stopes (working areas) in the No 2 shaft were affected by the rockfalls at 7:30 am.

The stopes are on 78 and 74 levels — 2,200 m to 2,350 m below surface.

"Rescue operations started immediately and are still in progress," said a spokesman for Anglo American early this afternoon.

He said the missing men had not been accounted for.

Vaal Reefs is believed to be the world's largest gold mine, employing about 41,000 people.

Last year 102 people lost their lives on the mine — 41 of them in a fire on December 1.

ACTIVITY

Many of the fatal accidents at Vaal Reefs were due to falls of rock underground, "which relate particularly to increased seismicity activity in the area of the Klerksdorp goldfields," the chairman Mr. Dennis Etheredge, said in his recent annual report.

"All means of preventing such falls are being pursued, including the improvement in the design and 'density' of support work and the possibility of filling mine out by air with slimes."

The mine is now 97% gold, with the remainder being very high-grade gold.
Rescuers tell of mine terror

By Iain Macdonald

Miners at the Vaal Reefs Gold mine at Orkney near Potchefstroom yesterday told of the panic and terror among trapped underground workers after a tremor-induced rockfall had killed seven black miners and injured 37.

Rescue teams are still searching for three missing miners. A mine spokesman said these were unlikely to be trapped alive. Either they had been killed, or they had reached the surface safely and had not reported.

The men had just come on shift at 7:30 yesterday morning when a tremor ripped through the rock and brought large boulders crashing down on five stopes between levels 73 and 74 of Number Two shaft.

Late yesterday afternoon, ambulances were still coming and going at the shaft entrance. Tense-faced mine officials pored over underground plans.

Mine manager Mr J Epillet said tersely "six blacks are dead and 37 injured. Some others are missing, and some are trapped underneath rock falls."

(Since then, one of the missing men has been found dead.)

"We're trying to get the rocks off the trapped men, but a number of travelling-ways are blocked, and we have to get those cleared first."

Some work was still going on in other levels of the mine yesterday.

A miner who was slightly injured and who helped carry the injured out, Mr Tshikundo Morani, said there had been "a tremor, a big vibration, then panic."

"We were fighting for about three hours to rescue the men I myself took three out."

"The shift-bosses were not down yet. My hand was cut by falling rocks," he said.

Another miner, Mr Boyce Rabi, said there was a big bang, and many people were hurt.
By JAYNE LA MONT

SIX miners were killed and 37 injured when a tremor struck the number two shaft of the Vaal Reefs gold mine near Orkney yesterday morning, causing rock falls which affected five stopes on two levels.

A spokesman for the mine said last night the injured miners, all of whom were black, have been taken to the West Vaal Hospital. Some of them are in serious condition.

One trapped miner was brought out alive.

The tremor, which measured 3.7 on the Richter Scale, occurred at 7:33 am causing rock falls on levels 73 and 74.

Although a number of miners are still missing, they are not thought to be trapped. Rescue operations are continuing, the spokesman said. All areas affected by the rock falls are being searched.

A fire trapped and killed 41 workers in the mine on December 1 last year, bringing the total deaths for 1978 to over 100.
Bokser vermis in myn

EEN van Suid-Afrika se bekende Bushney-broers van boksfam, Andries, 89, word saam met twee swart mynwerkers ná 'n rotstorting in die Vaal Reefs-goudmyn naby Orkney in Wes-Transvaal vermis.

In dieselfde voorval is sewe swart mynwerkers dood en 37 perse. Sommige van hulle is in 'n ernstige toestand in die hospitaal.

Gistermiddag het 'n woordvoerder van die Anglo Amerikan-grup gesê: daar is nie veel hoop om die drie vermisses te lewend te vind nie. Reddingswerkers gaan egter voort met hul werk.

Mnr. Bushney sou die einde van die jaar afgetree het. Hy het 22 jaar lank by die myn gewerk. Hy en sy vrou het twee jaar gelede twee van hul kleinkinders aangeneem nadat hul seun, die kinders se pa, in 'n motorongeluk oorlede is en hul moeder aan kank er gesterf het.

Mnr. Bushney en sy ses broers het almal op hul dag in Suid-Afrika geboks.
Hopes dwindle for three trapped miners

Hope of rescuing three trapped miners from the Vosl Reefs mine, where they were buried by a rockfall on Friday morning, is becoming remote, a mine spokesman said today.

Seven miners died and 37 were injured in the rockfall.

The missing men, one white miner and two blacks, are buried somewhere beneath tons of boulders, between 73 and 74 levels of the mine.

"We know the stope they should be, but it is very dangerous to go in at present," the spokesman said.

"Mind rescue teams are gingerly picking their way into the boulder-choked stopes, but "everything is loose in there and we have to move very carefully," he said.

The missing white is 55-year-old Mr Andries Bushney, from the Bushney boxing family, who was due to retire from the mine this year. He is one of a family of seven brothers and had recently adopted his son's two young children, after his son was killed in a road accident.
Mine victim's body recovered

ORKNEY — The body of Mr Andries Bushney, 59, last victim of the rockfall which killed 10 miners and injured 27 at the Vaal Reefs gold mine near here more than a week ago, was brought to the surface on Saturday.

Mr Bushney, who worked at the mine for 22 years and was due to retire at the end of the year, is survived by his wife and two grandchildren, whose guardian he became when their parents died a few years ago.

The accident, precipitated by an earth tremor, happened as the men went on shift at 7.30 am on April 6. — Supa
DECLARATION OF CONTROLLED WORKS
AND RISK WORK

The Minister of Mines has, in terms of section 10 of the Occupational Diseases in Mines and Works Act, 1973 (Act 75 of 1973), declared the following works to be controlled works with effect from 1 June 1979.

The works known as Consolidated Metallurgical Industries Limited, on the farm Tsoonland, of Lydenburg M 11 situated in the Mineral District of Lydenburg, Province of the Transvaal which is at present being worked by Consolidated Metallurgical Industries Limited, P.O. Box 105, Lydenburg.

The following work at the said works has been declared risk work by the Minister in terms of section 13 of the said Act with effect from the same date (i.e. 1 June 1979).

All work within the boundary fence of the works excluding work of a temporary nature performed by contractors or their employees, which shall be completed within a period not exceeding 12 months.

ALLE Werk binnen die waarde van die bedryf met uitsondering van werk van 'n tempereurlike aard, maak deur kontrakteurs of hul werknemers verrig, moet binnen tydperk van hoogstens 12 maande deur die bedryf moet wees.
Coal miner killed

Mercury Reporter
A MINE worker was killed and 18 injured in an underground explosion at the Balgray Colliery, Utrecht, yesterday afternoon.

The medical superintendent of the Niemeyer Hospital in Utrecht, Dr P A van der Merwe, said he was "very worried" about four of the injured.

Eight others — including one White man — were in a satisfactory condition and six were treated and discharged.

Details of the explosion could not be established by late last night but it is believed mine inspectors from Dundee were investigating.
Natal miners still serious

TWO of four badly burnt miners flown to Johannesburg on Monday after a gas explosion in Natal are still seriously ill in the Wenela Hospital.

Mr. Khotso Mofokeng is in the intensive care unit and Mr. Lenka Mosia is being treated in a surgical ward.
Ground fall
killed worker

A white miner was killed in a ground fall accident at the Bekukeng North mine in Bophuthatswana yesterday, a spokesman for Impala Platinum announced.

Mr. Nicolaas Jacobus Oosthuizen, 49, died after an accident in the mine's No. 6 shaft. — Sapa

RDM 27/4/79
212
Five miners die in shaft disaster

One white and four black mine workers were killed yesterday when a cable of the stage in the ventilation shaft of the Matla No 2 mine near Delmas snapped, a spokesman for the mine said today.

The five workers fell about 90 m down the shaft.

The white worker killed was Mr Ernest Hendrik de Witt (30), a carpenter. Mr de Witt leaves his wife and four children. The names of the black workers could not be released until their next of kin had been informed.
DR. MINISTER VAN MYSIEK JEEDE VAN MINSKE NAAR DE MINISTRE DE LA CHEMIN DE FER WIL DE VOLGENDE VAN DE OCMINGEIKEN GEOORDENIJ BEHERDE VERKLARING 

VERKLARING OP STIJVER LEZEN (TANG 3)

Betrapt de werken die in de uitvoering zijnde zijn, en die door de oude arbeiders van de Minen van Mijn en Wering zijn gestart, en die nu in de uitvoering zijn, hebben ze de volgende arbeiders gegeven:

1. De werkzaamheden zijn afgerond en de werkzaamheden zijn afgerond.
2. De werkzaamheden zijn afgerond en de werkzaamheden zijn afgerond.

DE MINISTRE VAN MYSIEK JEEDE VAN MINSKE NAAR DE MINISTRE DE LA CHEMIN DE FER WIL DE VOLGENDE VAN DE OCMINGEIKEN GEOORDENIJ BEHERDE VERKLARING 

VERKLARING OP STIJVER LEZEN (TANG 4)

Betrapt de werken die in de uitvoering zijnde zijn, en die door de oude arbeiders van de Minen van Mijn en Wering zijn gestart, en die nu in de uitvoering zijn, hebben ze de volgende arbeiders gegeven:

1. De werkzaamheden zijn afgerond en de werkzaamheden zijn afgerond.
2. De werkzaamheden zijn afgerond en de werkzaamheden zijn afgerond.

DE MINISTRE VAN MYSIEK JEEDE VAN MINSKE NAAR DE MINISTRE DE LA CHEMIN DE FER WIL DE VOLGENDE VAN DE OCMINGEIKEN GEOORDENIJ BEHERDE VERKLARING 

VERKLARING OP STIJVER LEZEN (TANG 5)

Betrapt de werken die in de uitvoering zijnde zijn, en die door de oude arbeiders van de Minen van Mijn en Wering zijn gestart, en die nu in de uitvoering zijn, hebben ze de volgende arbeiders gegeven:

1. De werkzaamheden zijn afgerond en de werkzaamheden zijn afgerond.
2. De werkzaamheden zijn afgerond en de werkzaamheden zijn afgerond.

DE MINISTRE VAN MYSIEK JEEDE VAN MINSKE NAAR DE MINISTRE DE LA CHEMIN DE FER WIL DE VOLGENDE VAN DE OCMINGEIKEN GEOORDENIJ BEHERDE VERKLARING 

VERKLARING OP STIJVER LEZEN (TANG 6)

Betrapt de werken die in de uitvoering zijnde zijn, en die door de oude arbeiders van de Minen van Mijn en Wering zijn gestart, en die nu in de uitvoering zijn, hebben ze de volgende arbeiders gegeven:

1. De werkzaamheden zijn afgerond en de werkzaamheden zijn afgerond.
2. De werkzaamheden zijn afgerond en de werkzaamheden zijn afgerond.

DE MINISTRE VAN MYSIEK JEEDE VAN MINSKE NAAR DE MINISTRE DE LA CHEMIN DE FER WIL DE VOLGENDE VAN DE OCMINGEIKEN GEOORDENIJ BEHERDE VERKLARING 

VERKLARING OP STIJVER LEZEN (TANG 7)

Betrapt de werken die in de uitvoering zijnde zijn, en die door de oude arbeiders van de Minen van Mijn en Wering zijn gestart, en die nu in de uitvoering zijn, hebben ze de volgende arbeiders gegeven:

1. De werkzaamheden zijn afgerond en de werkzaamheden zijn afgerond.
2. De werkzaamheden zijn afgerond en de werkzaamheden zijn afgerond.
frequency of inter-settlement contact would have increased and with it the probability of friction would have grown. The level of stress would have increased until friction occurred when groups would have moved away, settled and formed the nuclei of new cultures. Each of these nuclei could have acted in turn as a centre for friction and further expansion.

In this model, as was the case for the continuous spread model, carrying capacity has been defined as psychological tolerance and the problem of limiting resources remains.

A flow diagram and computer simulation of the discontinuous spread model were prepared (Fig. 3; Appendix 1).

DATA

Quantitative data. The rates of population growth used in the simulations were two, three, and a half, and four per cent per annum. The values were similar to those quoted by Birdsall (1957) for human groups colonizing uninhabited areas. Four values for carrying capacity were used: one, five, ten, and fifteen people per square kilometer. A value of five people per square kilometer has been used as the carrying capacity for simulations on subsistence agriculturalists (Ammerman and Cavalli-Sforza, 1973). The values coincide with low population known from African ethnography (Teo, 1950), but the possibility remains that the ethnographic values are too high since they may have increased as a result of European medical attention.

Both models were simulated with three different, arbitrarily chosen, input populations: 100, 500, and 1000 people. In the simulations space was conceptualized as a series of concentric circles. The perimeter of each circle was set at 10 km away from the previous circle.

Cultural data. The bevelled/fluted complex corresponds, at least in broad outline, to the eastern stream (Phillipson, 1977). However, there are a number of problems associated with the eastern stream. Nkope has been included in the eastern stream and has been used as a link between Early Iron Age cultures in eastern and southern Africa. Puffen (1978) has shown that some of the cultures included in the eastern stream, namely the Transvaal group, do not have a high relationship to either the Nkope-Gobemure axis or to Silver Leaves material and should be excluded from the eastern stream. Similarly, Nkope the e:

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VERKLARING TO BEERHOOIDE BEDRIJF

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1979

ZUIDAFRIKAanse MINES

DEPARTMENT OF MINES

The Minister of Mines, in terms of Section 10 of the Occupational Diseases in Mines and Works Act, 1973 (Act No. 18 of 1973) declared the following works in the controlled area, with effect from 1 August 1979, to be declared risk works by the Minister, in terms of Section 10 of the Occupational Diseases in Mines and Works Act, 1973 (Act No. 18 of 1973), for the purposes of the said Act:

1a. The works at Zuidafrikaanse Mines, Ltd, in the Transvaal, which were declared risk works by the Minister, in terms of Section 10 of the Occupational Diseases in Mines and Works Act, 1973 (Act No. 18 of 1973), for the purposes of the said Act, on 1 August 1979, are hereby declared risk works by the Minister, in terms of Section 10 of the Occupational Diseases in Mines and Works Act, 1973 (Act No. 18 of 1973), for the purposes of the said Act, with effect from 1 August 1973, in the same manner as the works at Zuidafrikaanse Mines, Ltd, in the Transvaal, which were declared risk works by the Minister, in terms of Section 10 of the Occupational Diseases in Mines and Works Act, 1973 (Act No. 18 of 1973), for the purposes of the said Act, on 1 August 1973.
Three killed as tremor rocks Reef

By Sieg Hannig and Iain Macdonald

Three miners were killed and 11 injured today by an earth tremor which shattered scores of windows, cracked walls and awakened thousands of people across the Witwatersrand.

An ERPM mine manager, Mr J A Tyser, said the tremor had triggered a burst at the 69 West level 19 East area of the South Western vertical shaft.

Two black men died and 11 were injured by falls of hanging at a depth of 2,800 metres. Another two were trapped and one was later found dead.

"Rescue operations would continue, Mr Tyser said. "We know the missing man is under falls of hanging but the area is choked and rescue operations will be protracted."

"Production has stopped in the areas affected and we have had minor falls at other shafts, but nothing serious."

Of the injured two were stretcher cases, but they and the nine walking injured were all found to be in a satisfactory condition after being examined at the ERPM hospital, a mine spokesman said.

The Star's Science Editor, Marais Malan, reports that the tremor was felt all over the Johannesburg area and even as far as Pretoria.

It registered four points on the Richter scale at the seismicograph of the South African Geological Survey in Pretoria.

This is rated as a "moderate" tremor, a spokesman said.

Walls crack

The Star's East Rand Bureau reported that glass panes were shattered, walls cracked and burglar alarms were activated as Germiston trembled.

It was one of the worst earth tremors to hit the city and lasted about three seconds.

Mr Paul Habib of Weber Road, Ridgeway, was "convincingly house was going to collapse."

His home had three

Rumbling

A resident of Craigavon, Johannesburg, said he woke up from the tremor at exactly 5 am. The tremor "set things rattling and rumbling" and lasted about 10 seconds, he thought.

An ERPM spokesman said there was no mine blasting at the time. Asked if present or past mining activity could have been responsible for the tremor, he said: "As far as we are concerned, the tremor did not originate on the mine."

Several thousand people and some factories went
Hunt for miner as 3 die in rockfall

Staff Reporter

Rescue teams at the ERPM mine on the East Rand were last night picking their way through falls of rock to try and reach a miner trapped by yesterday's earth tremor.

The rescue operation would take some time as "the men are working in complete darkness and they have to clear the way in front of them," a mine spokesman said last night.

The body of another miner was recovered during the day, bringing the death toll to three. Eleven other miners have been admitted to hospital in a satisfactory condition.

The names of the dead miners will not be released until their next-of-kin have been informed, the spokesman said.

The tremor, which occurred at about 5am and woke thousands of residents on the Rand, registered more than four points on the Richter scale but lasted only a few seconds.
Miners: names released

The names of the four black miners who died two weeks ago in Germiston as a result of a rockfall, were released yesterday by Group Editors.

The four are: Mr Sambuyi Ndashunshi, a Swazi from Hlatikulu, He was a labourer; Mr Joseph Zondo, a Zulu from Nongoma who was a leader-driver; Mr Elias Mbothi, a Xhosa from Mount Frere, Transkei who was a labourer and Mr Jabulani Khosa, a Shangaan from Bushbuckridge who was a labourer.

The rockfall incident happened at the ERPM mines. Three black miners were killed, one was missing and 11 injured. The fourth body was found after two days by rescue operations.

A spokesman of the mine had told POST that extensive rockfalls had occurred in the area.

Yesterday a spokesman of the mine said two of the 11 injured were still in hospital.
Mine blast bodies found

Staff Reporter

The bodies of two men who went missing about 3km underground at the Western Deep Levels Gold Mine after a pressure burst on Tuesday, were recovered yesterday, bringing the final death toll to nine.

Eight men, who were injured in the burst, are all in satisfactory conditions in the Western Deep Levels Hospital.

Seven of the bodies were recovered on Tuesday night.

The names of the victims — all black migrant workers — have been withheld until their next of kin have been notified.

The miners were working 3180m below surface in the No 3 shaft when the accident occurred.

A spokesman for the owners, Anglo American, said, "Rescue teams worked in four-hour shifts and were prepared to go on until the two missing men were found although they did not hold much hope that they would be found alive."

"The accident happened because the level on which the miners were working was very deep. The hot gas built up pressure until, eventually, the rock split open."

The accident is the worst since May last year when 20 miners were killed in a rockfall at Buffelstofnien."
December 1978

Newcastle Harbour

Proctor

The site is described as...
Two miners killed in rockfall

Two black miners and conditions were back to normal.

Sapa

A. Alpha Li on 1 May straight tax purp balance. and taxab respectiv. and 19.7

1. What is t of the pl

a) pending notification of their next of kin
b) 

2. Show how the tax charge will be disclosed in the income statement for the year ended 31 December 19.7, assuming

a) deferral method
b) liability method
(assume there are no other items causing timing differences)

3. How will the answer to 2. be affected by the existence of an extraordinary gain on disposal of a division of the company, amounting to R70 000, all of which was taxable, in the 19.7 financial year?

4. How does the answer to 3. change if the R70 000 is now a deductible loss, which can be set off against the taxable income from other sources of R50 000? Draw up the income statement assuming the deferral method is used.

5. Further to Note 4, assume now that the company has a set profit before depreciation of R60 000 in 19.8.

Draw up the income statement for the 19.8 financial year under a) liability method
b) deferral method
Assume the tax rate remains 42%
SKRAPING UIT DIH REGISTRER VAN BEHEERDE MYNE

Hierby word ingevolge artikel 11 van die Wet op Bedryfsakte in Myne en Bedrywe, 1973 (Wet 78 van 1973), bekendgemaak dat die Minister van Mynwese verklaar het dat die myn bekend as Weskus Vergrusers (Edms.) Bpk., oorgene deur Weskus Vergrusers (Edms.) Bpk., Postbus 5, La]?.plek, 7170, op die plaas Utvlugt 20/4, in die Landdroudistrict Vredenburg Kaapprovinsië, met ingang van 1 November 1979 ophou om 'n beheerde myn te wees.

VERKLARING TOT BEHEERDE BEDRYWS- EN RISIKOWERK

Die Minister van Mynwese het krags tens artikel 10 van die Wet op Bedryfsakte in Myne en Bedrywe, 1973 (Wet 78 van 1973), die volgende bedrywe met ingang van 1 November 1979 tot beheerde bedrywe verklaar:

(a) Die bedryf bekend as Bleskop Stone Crushers (Pty) Ltd, op die plaas Waterval 303 JQ, gelei in die landdroudistrict Rustenburg, provinsie Transvaal wat tans deur Hippo Quarries Ltd, Postbus 6810, Johannesburg, 2000, bedryf word, en

(b) die bedryf bekend as Hippo Quarries Transvaal (Pty) Ltd (Scoop Works), op die plaas Modderfontein 76 IR, gelei in die landdroudistrict Brakpan, provinsie Transvaal, wat tans deur Hippo Holding Company Ltd, Postbus 6810, Johannesburg, 2000, bedryf word.

Die volgende werk by die genoemde bedrywe is met ingang van dieselfde datum (d.i. 1 November 1979) krags tens artikel 13 van genoemde Wet deur die Minister tot risikowerk verklaar:

(a) Waar die verskuiwing, oorplasing of hantering van klip, rots, erts of minerale plaasvind,

(b) waar die vergrusers, sif of klassifiserings van klip, rots, erts of minerale plaasvind uitgesondeer waard onder water gekies, en

(c) op uitskothope, stapels of erts-stapels, uitgesondeer waar die uitskat of erts in die vorm van slik gestort is of word, insluitende die plekke waar sodanige hope of stapels reeds gestort is.

RI- MOVAL FROM THE REGISTER OF CONTROLLED MINES

In terms of section 11 of the Occupational Diseases in Mines and Works Act, 1973 (Act 78 of 1973), it is hereby notified that the Minister of Mines has declared that the mine known as Weskus Vergrusers (Pty) Ltd, worked by Weskus Vergrusers (Pty) Ltd PO Box 5, La?]plek, 7170, on the farm Utvlugt 20 4, in the Magisterial District of Vredenburg, Cape Province, shall cease to be a controlled mine with effect from 1 November 1979.

DECLARATION OF CONTROLLED WORKS AND RISK WORK

The Minister of Mines has, in terms of section 10 of the Occupational Diseases in Mines and Works Act, 1973 (Act 78 of 1973), declared the following works to be controlled works with effect from 1 November 1979:

(a) The works known as Bleskop Stone Crushers (Pty) Ltd, on the farm Waterval 303 JQ, situate in the Magisterial District of Rustenburg Province of the Transvaal, which is at present being worked by Hippo Quarries Ltd, PO Box 6810, Johannesburg, 2000, and

(b) the works known as Hippo Quarries Transvaal (Pty) Ltd (Scoop Works), on the farm Modderfontein 76 IR, situate in the Magisterial District of Brakpan, Province of the Transvaal, which is at present being worked by Hippo Holding Company Ltd, PO Box 6810, Johannesburg, 2000.

The following work at the said works has been declared risk work by the Minister, in terms of section 13 of the said Act, with effect from the same date (i.e. 1 November 1979):

(a) Where moving, transferring or handling of stone, rock, ore or minerals takes place,

(b) where crushing, screening or classification of stone, rock, ore or minerals takes place, except where this is carried out under water, and

(c) on waste dumps, piles or ore piles, other than where the waste or ore has been or is being deposited in the form of slime, including the places where such dumps or piles have already been deposited.
DECLARATION OF CONTROLLED WORKS 
AND RISK WORK

The Minister of Mines has, in terms of section 10 of the Occupational Diseases in Mines and Works Act, 1973 (Act 78 of 1973) declared the following works to be a controlled works, with effect from 1 November 1979.

The works known as Eastleigh Crushers, on the farm Noontgedacht 434 IP, situated in the Magisterial District of Klerksdorp, Province of the Transvaal, which is at present being worked by Keir & Cawder Crushers Ltd, P.O. Box 9893, Johannesburg.

The following works at the said works has been declared risk work by the Minister, in terms of section 13 of the said Act, with effect from the same date (i.e. 1 November 1979).

(a) Where moving, transferring or handling of stone, rock, ore or minerals takes place.

(b) Where crushing, screening or classification of stone, rock, ore or minerals takes place, except where this is carried out under water, and

(c) On waste dumps, piles or ore piles, other than where the waste or ore has been or is being deposited in the form of slime, including the places where such dumps or piles have already been deposited.
Ore buries miners

THREE miners died when they were buried by ore accidently discharged into a cross-cut at the Elandrand gold mine near Carletonville at the weekend.

A spokesman for Anglo American said the accident occurred when the men were standing near an orepass in a cross-cut on the 10th level.

"The box which controls the discharge of ore apparently broke from the mounting and the sudden discharge buried the men," he said.

The names of two of the men have been released. They were the mine overseer, Mr Antone Leon Vermeulen, 41, of Impala Street, Carletonville, married with two children, and Mr Ludewicus Britz, 24, a mine electrician from Elandstedt, married and father of a one-year-old son.

The third man, a Transkeian, will not be identified until his next-of-kin have been informed. — Sapa
Fortunately, the opportunity to take stock of the southern African framework comes at a time when the craft of typological analysis is itself experiencing important changes. Further opportunities exist, therefore, for pioneering the application of any of the experimental steps in serial classification. Again, smaller conferences can explore the most suitable combinations of analyses for each specific phase of the continuum. Morphological classification will continue to play its part among these proceedings, but will no longer dominate them. We must also anticipate that some of the generally credible systems of classification will be both slower and more expensive than those in use at present. As it matures, however, we can expect it to become a faster, cheaper procedure. It is both important and urgent that it achieve this status soon because there may be serious difficulties in keeping up with the pace of excavations. A fast, efficient, and credible system of artifact classification must be readied now before field archaeology in southern Africa begins to leave the Pure-Research phase of its history and enter into its Rescue phase.

References


the cost of raising the necessary funds has to be taken into account. The funds themselves are already justified by comparison with the alternative methods of provision, but there are additional costs involved in raising them: interest on loans or, administratively and incentive costs of raising taxation. These are normally insignificant for any given project, but may affect the overall amounts available for the health budget.

Where the methods of providing a given service use the same kinds of resources in different proportions, the decision-making can be simplified by means of Linear Programming, though health service choices cannot usually be presented in the simplified way required by this method.

2. CHOICE OF PROGRAMMES

So far, we have discussed methods of choosing means to obtain a given objective. But what tools are available to aid the choice of objectives themselves? Can anything be said on the question of the priority to be given to particular diseases or age groups, whether to allocate more to child welfare clinics or care of the aged?

Overall criteria are needed, and they have to be in a way that they can guide these detailed questions. The problem is not only to relate resources used to the various objectives to each other.

There are various means of doing this, but all expenditure be accounted for by the ends it is e

2.1 Programme Budgeting

Programme budgeting, also known as budgeting by objectives, involves the presentation of expenditure data according to the objectives to which it is directed. Thus, projects to combat TB would be grouped together, geriatric problems, sanitation programmes, etc.

This is necessary:
(a) to know the cost of pursuing each objective;
(b) to group together activities with the same objectives which can be compared by cost-effectiveness analysis;
(c) to know the effectiveness of a given amount of money when spent on different objectives, so that choices can be formulated in terms of the alternatives we might afford - so many geriatric day care centres, so many child welfare clinics, etc.

Financial statistics are not traditionally arranged on this basis but in categories such as 'salaries', 'transport', 'medicines', etc. A separation, e.g. between expenditure on different disease groups or age groups cannot be made.

The grouping of expenditure into programmes is an art. Pole, an economist in the U.K. Department of Health, writes:

"Programme structure should, in my view, be mainly determined by the decisions to the taking of which one wishes it to contribute... One might suggest that where decisions are primarily a matter of political or moral judgement - of determining basic priorities - one would want the activities to be compared to reside in different programmes - the mentally handicapped against the alcoholics, but where it is a more technical question of how particular objectives can best be achieved - drug therapy against biological therapy - one would want the activities to be compared to be within a particular programme. This distinction is in fact an economic jargon of slight vintage - in that attempts are made to separate off a broad latter into two blocks of social welfare. Three groups of people, one being treated by intensive hospital care, the other in the community, is a technical one. Which is the cheaper way to fulfill whatever are the society's requirements for the treatment of this group? But community care originally became fashionable as a good thing in itself. The practitioners are very apt to muddle the medical and economic arguments when it suits them, and the politicians and administrators equally so when it suits them, but the economist's concern is to keep them separate".

Programme budgeting, then, entails the attempt at this separation, sorting out from the multiplicity of decisions those which can be made on the basis of administrative or economic, together with medical-technical criteria, and those in which the role of the public through political
MINING - Accidents
8-2-80 - 31-12-80
DEPARTMENT VAN MINWESE

VERKLARING VIR REFRÉNDSE

8 FEBRUARIE 1980

No 220

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STATSKOERANT, 8 FEBRUARIE 1980

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EN RISIKOWERK

DEPARTMENT OF MINES

AND RISK WORK

DECLARATION OF CONCERNED MINES

8 FEBRUARY 1980

No 250

STAYSKOERANT, 8 FEBRUARIE 1980
Miners killed in pressure burst

Staff Reporter

THREE miners were killed and six injured in a pressure burst early yesterday at Western Deep Levels gold mine, near Carletonville.

Mr M U Fallon, a spokesman for Anglo American Corporation, which owns the mine, said last night the burst happened shortly after midnight.

The miners, all blacks, were working on 108 level, about 3,000m below the surface.

"As far as I know none of the injured men is seriously hurt." They were all admitted to the hospital at Western Deep Levels," Mr Fallon said.

The names of the men are being withheld until their next-of-kin have been informed.
Three miners killed

THREE black mineworkers died and six were injured in a pressure burst at Western Deep Levels gold mine, near Carletonville, early yesterday, according to a Western Deep Levels spokesman. The pressure burst occurred at the 108 level, about 3,000 metres below the surface.

The names of the dead are being withheld until their next of kin have been informed. — Sapa
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A TOTAL NUMBER OF STUDENTS: 29

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Dean

Registrar (Academic)
in 2km

mine plunge

23 die

STAR 271/8° (212)

VAAL

KLEINSCHOR

HARBEREBEPONTEN

BUFFELSPONTEN

REEFS

ORNE
By Iain Macdonald
Mine cage plummets down shaft

Argus Correspondent

JOHANNESBURG. — Nine teams of rescue workers have started operations at the Vaal Reefs Mine No 2 north shaft, where a personnel cage plummeted to the bottom early today.

It could be some time before the bodies are reached, because recovery workers are moving down the shaft slowly, checking for damage as they go.

If care was not taken in this operation the rescue workers would endanger their own lives.

The capacity of the cage was about 40, but it was not full.

Mine personnel were not certain of the number of people travelling in the cage.

It was also not clear how far down the shaft the accident occurred, said the Anglo American Corporation.

999 M PLUNGE

In October 1978 14 men were killed, eight injured and 43 unharmed when a nine-ton bucket plunged 900m down a shaft at the Sappies mine in the Free State.

In 1976, 102 people lost their lives on Vaal Reefs during operations. Of these, 41 employees died in a fire in a stop on the 78 level of Number 8 shaft.

Many of the other accidents were due to rockfalls underground, according to the mine’s annual report.
too late

Prayers of miner's wife

...
23 die in 36 seconds of mine horror

Own Correspondent

JOHANNESBURG. — Twenty-three miners lived through 36 seconds of horror yesterday as they plummeted two kilometres to their death in a double-decker mine cage at a speed of 200 km/h.

The death cage, named the "Mary-Ann," at the Vaal Reefs gold mine, near Orkney, hurtled 2,000 metres when it snapped its bridle in the No. 2 shaft of the world's largest gold mine.

The cage, almost four metres high, smashed into the bottom of the shaft and plummeted into a height of less than one metre.

Of the 23 dead miners, three have been identified: Mr Johannes Brekenhorst, a box controller from Orkney; Mr Pieter van Reenen Cronje, a developer from Stilfontein; and Mr Erich Jungman, a developer from Orkney.

Special inquiry

Early this morning miners working beneath a make-shift wooden protective platform at the bottom of the shaft were struggling to retrieve the bodies of the victims.

Late last night that the bodies of about half of the 23 miners had been recovered.

Mine officials were still trying to ascertain the precise cause of the tragic accident, which will be the subject of a special inquiry headed by the inspector of machinery at Klerksdorp, Mr E Creedy.

A shocked mine manager, Mr John Epeli, described last night how the men, after arriving slightly late for the day shift, had clambered aboard the main access shaft lift-cage, known to miners as the "Mary-Ann" before hurtling down the 2,150-metre shaft.

The cage was rung away and had moved about 40 feet when it suddenly stuck, said Mr Epeli. Whatever obstruction later that all the workers returned to the surface and the process of identification could begin.

During the plunge the "Mary-Ann" damaged an electric cable which provided power to a sub-vertical shaft putting other lifts out of action.

With nearly 3,000 workers in the mine at any one time, identification of the workers presented a formidable task while mourning families waited anxiously for news.

"We have three ways of identifying which men were in the cage," said Mr Ken Dicks, production engineer. "Each man wears a personalized wristband with a number on it. Otherwise we still don't know who they were, we have to wait until the entire lift returns to the surface and the lamps are returned. We then find out..."
"Iron was holding the lift givin way and it fell abruptly. When it reached the end of the slack, the force was so great that it snapped the bridle which attaches the rope to the top of the cage."

'Verushing sound'

Nearly 3,000 workers already in the mine were suddenly aware of a rushing sound, accompanied by violent shaking and clouds of dust as the cage began to fall.

The assistant manager, Mr Anton Prinsloo, said that workers near the shaft at the bottom of the 7th level realized what had happened and scattered to avoid the explosion as the cage hit the ground.

When the lift stopped, about 1½ turns of rope were paid out before an automatic braking device came into operation," Mr Prinsloo said.

The driver realized that something had obstructed the lift and began moving towards the headgear to investigate. He was about halfway there when he heard the transom snap.

Production around the shaft was immediately halted, but it was not till nearly five hours

whose lamps are missing

Speed of 200 km/h

If any men are missing at the hostels, we check their rooms to see whether or not their underground clothing is there.

A Johannesburg physician said the cage would probably have reached a free-fall speed of 200 km/h within a short distance.

"There could have been a drag Air in the shaft would have compressed, but once it had reached its maximum velocity the cage would have remained until impact. It would have hit the bottom in less than a minute," said A Johannesburg medical expert.

The miners would have been conscious and aware of what was happening during the plunge.

"Nothing would have happened to them, they wouldn't have blacked out. It would be like travelling in a fast car. You are one with the car. Nothing happens to you until the car collides."

He said that even the high speed at which the cage was travelling would not have caused the men to black out.

"If you dive in an aeroplane, you don't black out. It's only when you go up again fast and change your speed and direction of movement."

The sheared steel transom which ran across the top of the cage. When the cage eventually fell - after being obstructed - the strain was so great that it snapped the transom (which had attached the rope to the roof of the cage).

Mrs Anna Bronkhorst and her son Piet, 17 Mrs Bronkhorst's husband Johannes was one of the victims.
30 seconds sufficed out lives of 31 miners.

Later, when it became

...
It seems incredible that this massive piece of machinery should snap, but it did — and sent 70 men to their deaths. Picture by Phil Kumal.

PRODUCTION DETAILS: It is a piece of the bridge that supported the car.

The bridge was designed by Arthur Byer, an engineer known for his innovative designs. The bridge was built in 1930 and was a marvel of engineering.

The bridge was 1100 feet long and had a clearance of 16 feet above the river. The bridge was built to accommodate heavy traffic, including trains.

The bridge was completed in 1930 and opened to the public.

The bridge was closed in 1950 due to structural issues and was later demolished in 1952.

The bridge was a significant engineering feat and was a symbol of the progress made in the early 20th century.

The bridge was a popular tourist attraction and was frequently photographed.

The bridge was demolished in 1952 due to structural issues.

The bridge was a testament to the ingenuity of the engineers who designed and built it.
Wife's
prayer
in vain

by Sieg Hannig

Norma is Mrs. Joey Cronje of Stilfontein who prays at 10 am and ends them by praying for her arms.

Yesterday she started praying for her husband at 6 am and something took possession of her.

She broke into uncontrollable weeping and prayed, "Oh Lord, protect him for me. Bring him safely home and be with him underground and with those who work with him white and black."

But it was too late.

Ten minutes later a personnel officer knocked at the door. There's been an accident, he said.

She asked if the case had simply run away or if the news had broken.

But she was told that nothing was known. The men could not be reached.

One or two hours later she was told of the death of her husband, Mr. Piet Cronje (49), a developer.

Mr. Cronje was one of the three whites who lost their lives in yesterday's death plunge at the Vaal Reefs North mine.

He was the second husband. Mrs. Cronje had lost to the West Rand gold mines.

Her first husband also died as a result of an accident which brought on thrombosis.

He died in 1973, 13 years after a rockfall in the Stilfontein mine. He had spent eight months in the Chamber of Mines Hospital and suffered from headaches for the rest of his life. Mrs. Cronje said.

Mr. Piet Cronje is survived by four children from his first marriage, the youngest aged 17.

For the Bronkhorsts it started as a happy day...

By Sieg Hannig

Yesterday should have been full of happiness for miner Johannes Bronkhorst of Oranje, his wife and their seven children.

The six youngest children were writing their last exams before the end of the school term.

Their eldest son, Johannes, named after his father, had a seven-day pass from national service on the border.

But Mr. Bronkhorst (49), a box controller at the Vaal Reefs Gold Mine, was one of the miners who died in yesterday's disaster.

He had had a narrow escape once before when several of his co-workers were killed and injured in a rockfall at another mine.

"A miner's wife can never be sure her husband will return at night," said Mrs. Anna Bronkhorst. "She did not know what would become of her and her large family."

"A miner lives from hand to mouth," she said. "Many miners have financial problems here. Only last night told my husband that we would count our blessings."

She had just received news of her husband's death when her eldest son called her from Leslie, where he was looking after his sick grandmother.

Johannes heard of the accident on the radio. He knew that the accident happened about the time his father was going underground.

The younger children heard the news only when they came home from school — to start the Easter holidays.

The grim wait. Workers with unused stretchers are standing by with little hope of even recognizing the men, possibly friends, who were killed in the 2 km death plunge.

* Picture by Mark Potors.

The bridge snaps as the cable tautens.

The plunge to destruction and 31 deaths.
Disaster

TWENTY-THREE miners — 20 blacks and three whites — were killed at Orkney near Klerksdorp yesterday morning when a skip plunged to the bottom of No 2 Shaft at the Vaal Reefs Mine, the Anglo American Corporation said in a statement yesterday.

The dead included three white miners, Mr Johannes Bronkhorst, a box controller, married, from Orkney, Mr Pieter Cronje, a developer, married, from Stilfontein, and Mr Eric Jungman, a developer, married, also from Orkney.

The names of the 20 blacks would be released as soon as their next of kin had been informed.

The two-tier 40-man conveyance began its descent of the 2,300-metre shaft at 5.45 am and when it was about 400 m below surface, apparently jammed and came to a halt.

A mine spokesman said that the possible sequence of events from this point onwards was that it suddenly freed itself. When the slack of the cable was suddenly taken up, the bridle attachment, which secured the cable to the top of the conveyance, snapped and it fell the rest of the way.

**Damage**

The snapping of the bridle rendered the safety devices on the conveyance inoperable, the spokesman added.

Units fell from the conveyance damaged part of the shaft area and also severed the cable bringing power to the subvertical shaft.

Nine teams first had to inspect the shaft for damage before descending to the shaft bottom, where an inspection showed that all the occupants of the conveyance were dead.

At about 11.30 am the power cable was reconnected and shortly afterwards the other personnel conveyances in the subvertical shaft system came back into operation.

At the time of the accident, part of the morning shift was already underground and it was decided to bring them to surface during the late morning.

An inquiry into the causes of the accident was already in progress conducted by Mr E Creedy, inspector of machinery from Klerksdorp, the statement concludes.
The scene of the disaster at the East Reel Mills in Olean.

Horribilis experience

[Diagram of the East Reel Mills showing the layout and the area affected by the disaster.]

By W. F. Robison

Forty-five people were killed in the East Reel Mills disaster. The accident occurred when the reels broke and caused the death of over 200 workers. The reels were located in the underground level of the mill, where over 2000 workers were employed. The accident caused a tremendous loss of life and property. The aftermath of the disaster has left a lasting impact on the community. An atmosphere of grief and mourning prevailed over the town after the tragedy.
Half a minute of terror, then death

Mercury Correspondent

JOHANNESBURG — Twenty-three miners lived through 10 seconds of terror yesterday as they plummeted to death in a double-decker mine cage at 200km/h.

The death cage, a 'Mary-Anne', at Vaal Reefs Gold Mine, near Orkney, plummeted 2000m down.

It went in a free-fall when it snapped its bridle in the No 2 shaft of the world's largest goldmine.

The cage was 4m high, shattered at the bottom of the shaft and concussed to a height of less than 1m.

Those who died were 19 blacks whose names have not been released and three whites.

Mr Johannes Bromhorst, a box controller from Orkney, Mr Peter Crouse, a developer from Stillfontein; and Mr Erick Jungman, a developer from Orkney.

Last night miners, working beneath a make-shift, wooden protective platform at the bottom of the shaft, where struggling to retrieve the remains of the men.

Mine officials were still trying to find the cause of the accident which will be the subject of an inquiry headed by Klerksdorp's inspector of machinery, Mr E Creedy.

A shocked mine manager, Mr John Eplett, described how the men, after arriving slightly late for the dayshift, climbed aboard the man access shift lift cage, known to miners as the 'Mary-Anne', before they fell to their deaths down the 2150m shaft.

At that stage, shortly after the accident, officials knew that the chances of any of the men surviving the plunge were 'very remote'.

Nearly 3000 workers already in the mine were suddenly aware of 'rushing sound' accompanied by violent shaking and clouds of dust as the cage began to fall.

The acting manager, Mr Anton Prinsloo, said that workers near the shaft at the bottom 70th level realised what had happened and scattered to avoid the explosion as the cage hit the ground.

When the lift stopped about one-and-a-half turns of rope was paid out before an automatic braking device came into operation,' Mr Prinsloo said.

'The driver realised that something had obstructed the lift and began moving towards the headgear to investigate.

'He was about halfway there when he heard the transom snap.'

Production around the shaft was immediately halted, but it was not until nearly five hours later that the workers returned to the surface and the process of identification could begin.
Third Disaster

Lift Plunge was

The cage was runk

in which 23 miners plunged to their death. The broken steel bracket that snapped off the cage was runk.

The sentence of death - the head shots - is still the role.

Beers Road mine - the head shots - is still the role.

JOHANNESBURG - The gold mine charters at the 1000 million.

JOHANNESBURG - The gold mine charters at the 1000 million.

The cage was runk. The head shots - the roll of the cage.

Beers Road mine - the head shots - is still the role.

JOHANNESBURG.

By Brian O'Farrell

and Jeremy Brooks

A mine testmony of tragedy. The broken steel bracket that snapped off the cage.
Death toll now 31 in Vaal Reefs mine disaster

By Sieg Hausing

The death toll from the 2 km plunge of a double-decker cage at the Vaal Reef Mine near Klerksdorp yesterday is now thought to be 31.

With the gruesome recovery of the unrecognizable bodies completed at 1 am today, the Vaal Reef mine manager, Mr John Eblett, announced: "Instead of the 20 blacks originally estimated to be involved, it now seems to be 28 in addition to the three whites already identified."

"We were not quite sure how many were in the cage. We are now double checking."

An emergency brake on the cage could have saved the lives of the miners in the North No 2 shaft. But the cage had no braking device.

The emergency mechanisms all operate from the winding engine — and one of these safety devices indirectly contributed to the tragedy.

The double-decker "Mary Ann" service cage was being lowered from the surface at 5.45 am, but was stopped by an unknown obstruction.

The 4.5-cm-diameter hoisting rope uncoiled above the cage, possibly about 10 m of it. Then the "slackness" triggered the safety device which brought the winding engine to a standstill.

The winding-engine driver rushed to the post.

He had covered barely half of the 20 m from the winding engine shed to the headgear when it happened.

The cage dislodged itself and tautened the steel rope suddenly after a brief "free fall."

Then with a loud crack the heavy steel beam on which the cage was suspended snapped.

Now, with nothing to brake the cage, it hurtled to the bottom.

The roar of the plummeting cage sent men at the lower shaft, stations scrambling for safety.

Reports of a ripped out cage door and a severed leg indicate that the cage disintegrated even before hitting the bottom.

There the remains of the two-decker cage telescoped into a tangle of steel and bodies rumoured to have been only 50 cm high.

The mine, one of the richest in the country, earned R199,87-million in 1970 from gold and uranium production.

Sixty-two people were killed in accidents at the mine last year. 

• More reports, pictures — Page 3.
• Anglo Mines comment — Page 24.
Mary-Ann's sec plunge to death

By JEREMY BROOKS and BRIAN O'FLAHERTY

TWENTY-THREE miners plunged through 36 seconds of terror yesterday as they plummeted 2km to their deaths in a double-decker mine cage falling at about 200km/h.

The death cage, a "Mary-Ann", at Vaal Reefs Gold Mine, near Orkney, hurtled 2 000m down in free-fall when it snapped its bridle in the No 2 shaft of the world's largest gold mine.

The almost 4m-high cage shattered at the bottom of the shaft and concertinaed into a height of less than one metre.

Those who died were 20 blacks whose names have not been released and three whites.

The whites were Mr Johannes Bronkhorst a box controller from Orkney, Mr Pieter Grobe, a developer from Stilfontein, and Mr Eric Jungman, a developer from Orkney.

Last night miners, working beneath a make-shift wooden protective platform at the bottom of the shaft, were struggling to retrieve the remains of the men.

Mine officials were still trying to find the cause of the 'freak accident' which will be the subject of a special inquiry headed by Klerksdorp's Inspector of Machinery Mr E. Creed.

A shocked mine manager, Mr John Eglett, described how the men, after arriving slightly late for the day shift, climbed aboard the access shaft lift cage known to miners as the "Mary-Ann", before they fell to their deaths down the 2 000m shaft.
Vaal Reefs mine officials examine the transom which snapped, sending 23 men plummeting more than 2km to their deaths

Witnesses describe death

By SOPHIE TEMEA and STAN HLOPHE

LATE last night thousands of black mine-workers at the Vaal Reef No 2 shaft were anxiously waiting for news and names of 20 of their colleagues who died in yesterday's disaster.

At about 1.30pm the first batch of workers returned from the disaster shift and related gruesome details of the tragedy.

Aaron Masiza, a 23-year-old fitter, looked shocked and kept wiping his sweating hands on his overall as he described pieces of human flesh flying through the air.

He said: "I was busy at level 59 when I heard screaming and screeching. I looked down and saw an object plunging down hitting the walls of the shaft.

"Before I knew what was happening I saw strange particles fly through the air, and later noticed that it was human flesh.

"I also saw limbs but I cannot tell whether it was someone's hands or feet."

Tamsana Paulos Majah was on the verge of tears. One of the dead was his cousin Mathews Thamu Majah.

He said: "My cousin joined the mine only two months ago after I had persuaded him to come and work with me. I never thought he would die in such a tragic manner."

"The cage was running away, and had moved about 13m when it suddenly stopped - for some unknown reason," he said.

"About 13m of rope then went slack and coiled on the roof. Suddenly whatever obstruction was holding the lift gave way and it fell abruptly.

"When it reached the end of the slack the force was so great that it snapped the brake which attaches the rope to the top of the cage."

The section manager, Mr. Anton Prinsloo, said:

"When the lift stopped about one and a half turns of rope was paid out before an automatic braking device came into operation."

"The driver realised that something had obstructed the lift and began moving towards the headgear to investigate. He was about halfway there when he heard the transom snap."

The driver was treated for shock and taken home shortly afterwards.

Nearly 3,000 workers already in the mine were suddenly aware of a "rushing sound," accompanied by violent shaking and clouds of dust as the cage began to fall.

Mr. Prinsloo said that workers near the shaft at the bottom 7th level realised what had happened, and scattered to avoid the explosion as the cage hit the ground.

Production around the shaft was immediately halted, but it was not until nearly five hours later that the miners returned to the surface and identification of the dead men could begin.

* Pictures Page 3
The metal of the transom, still attached to the rope which held the mary-ann cage, shows a clean break — "like torn-up piece of paper," as one mine-worker described it.
Mine victims’ names

JOHANNISBURG — Anglo-American Corporation yesterday amended the death toll of Thursday’s Vaal Reefs mine disaster, announcing the final count to be 31.

The names of another nine of the miners killed in the Vaal Reefs accident on Thursday were released by Boar Drilling, their employers, yesterday.

They are Mr David Sietiso, 39, of Mount Fyero, Mr Tatsamokhele Vendi, 45, of Umbukela, Mr Simunye Tobane, 35, of Cofimvaba, Mr Thembelwe Mgedzeni, 21, and Mr Mphumzi Mngamandla, 39, both of Engcololo, Mr Mnyawya Juberwe, 24, of Butterworth, Mr Nqobile Dube, 25, and Mr Mthunzi Tshabalala, 35, both of Tsomo, and Mr Mrwanda Mambela, 22, of Maitshulele.

The names of three other victims — Mr Johannes Bronkhorst, of Orkney, Mr Peter van Reenen Cronje of Stilfontein, and Mr Erich Jungmann, of Orkney — were released on Thursday.

The names of the other victims will be released once their next-of-km have been informed — Sapa.
Question mark over mine death plunge

BY CHRIS MARAIS

WHAT caused Thursday's death plunge at Vaal Reefs Gold Mine?

The accident, which killed 21 miners who plummeted in a cage more than 1km to the bottom of No 2 shaft, should never have happened.

Elaborate safety devices and legal regulations dealing with the movement of people down a mine shaft should have made it impossible for anything to go wrong.

And yet, at 5.40am on Thursday, a small two-deck cage—the Mary-Ann—set normally used for transporting labour, slammed its brakes and hurtled down the shaft.

At first the cage was stopped then down the shaft by an obstruction.

About 13m of steel rope went slack and coiled on the roof of the cage. The obstruction then suddenly gave way and the cage fell.

The force on the rope once it thickened was so great that the bridge attaching it to the top of the cage snapped.

Yesterday, mining officials began the first leg of their inquiry into the death plunge—the Anglo American Corporation—owner of Vaal Reefs—remained tight-lipped on what could have caused the accident.

Questions that the Rand Daily Mail put to Anglo American—and were unanswered because of the pending inquiry—were:

What was the obstruction that originally stopped the Mary-Ann cage on its downward journey and then suddenly released it?

What were all the safety devices used in the cage and its hoisting machinery?

When was the last time the Mary-Ann was used before the fatal plunge?

One of the regulations about the running of a winding plant, quoted from the Mines and Works Act is:

When winding in any compartment has been stopped for any purpose for a period exceeding one hour, or when a conveyance has been changed, the winding engine shall not be used for the raising or lowering of persons until the cage has been run at least one complete turn up and down such compartment or compartments.

Professor Robert Wiebaum, head of the Department of Mining and Geology at the University of the Witwatersrand, said:

One view could be that when this type of accident happens for the first time, it indicates that the safety precautions were not what they should be.

"The regulations are, however, adequate to deal with normal events."

The cages in use were generally inspected once daily.

He suggested that one of the possible causes for the initial obstruction could have been that the guide mechanism—by which the cage is steadied as it moves up and down the shaft—was faulty.

"Routine checks, carried out with an inspector standing on top of the cage as it slowly descends, would normally bring out this type of fault— the cage would simply stop."
Question mark over mine death plunge

By CHRIS MARAIS

WHAT caused Thursday's death plunge at Vaal Reefs Gold Mine?

The accident which killed 31 miners who plummeted in a cage more than 2km to the bottom of No 2 shaft, should never have happened.

Elaborate safety devices and legal regulations dealing with the movement of people down a mine shaft should have made it impossible for anything to go wrong.

And yet, at 8.45am on Thursday, a small two-deck cage -- the Mary-Ann -- not normally used for transporting labour, snapped its bridle and hurtled down the shaft.

At first the cage was stopped 13m down the shaft by an obstruction. About 3m of steel rope went slack and coiled on the roof of the cage.

The obstruction then suddenly gave way and the cage fell.

The force on the rope once it was tautened was so great that the bridle attaching it to the top of the cage snapped.

Yesterday, as mining officials began the first leg of their inquiry into the horror plunge, the Anglo American Corporation -- owner of Vaal Reefs -- renewed tight-lipped on what could have caused the accident.

Questions that the Rand Daily Mail put to Anglo American -- and were not answered because of the pending inquiry -- were

- What was the obstruction that originally stopped the Mary-Ann cage on its downward journey, and then suddenly released it?
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Examination Results in Faculty of Arts

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Ultimate price of gold

Millions of South Africans benefited this week from budget dispensations, made possible through record earnings from gold. Let them remember today the price in human lives that has been paid down the years to extract the precious metal from the earth's bowels.

This week's disaster at the giant Vaal Reefs mine, claiming 31 lives, has shocked the nation. It has underlined the risks of deep-level mining and agonising questions will probably be asked about improving safety.

How? South Africa is a leader in the world mining technology. No country is more advanced in know-how. Safety precautions always take precedence in planning. All operations and all developments are keyed to the protection of the miners.

But the risks remain and will always be there because mining is dangerous. And the deeper miners dig the greater are the dangers.

Measured against the dangers, a value of even 800 dollars an ounce, hit earlier this year, is not too high. Not in terms of human effort.

Consider what has become routine at the ill-fated Vaal Reefs undertaking. To start their day's work, men are lowered two kilometres below the earth's surface. Only after making that breath-taking descent are they positioned to go about their duties.

In the instance of Thursday's tragedy something obstructed the lift cage shortly after the start of its descent. When whatever was obstructing the lift gave way the transom connecting the lift to its cables snapped and the lift plunged at enormous speed to the bottom of the shaft.

The horror the 31 men experienced before they died on impact was long endured — half a minute. Thirty heart-thumping seconds of utter helplessness, then merciful oblivion.

We mourn today with our readers those 31 men. Our hearts go out to their families. Our sympathies go, too, to the mining company that employed them. It is the company's task to make good what went wrong, to reassure a work force numbering 41,000 people and to get everyone back on the job.

That job, as South Africans know more certainly now than ever before, is essential to this country's economic progress and prosperity.

Without gold and the brave men who bring it to the surface, we would all be poorer.

There should be a national monument in this country to the hundreds of miners who have died in search of this wealth.
9 more mine dead named

Nine of the dead at the Vaal Reefs mine tragedy were employees of Boart Drilling, working on a drilling construction operation underground and have been identified by their colleagues who remained on the surface.

A process of elimination is continuing to identify the rest of the 31 dead, said a spokesman for Anglo American this morning.

"Others will eventually be named merely by the fact that they are not at the hostels, but many occasionally go off for a break and we have to confirm who those are," he said.

He said that the victims' families should be covered by the mine's compensation fund, according to a scale assuming that a widow with three children would receive about 75 percent of her husband's earnings with benefits.

The names of the nine Boart employees identified were:

- Mr. Sibanda (35), a miner who worked at Vaal Reefs for two years.
- Mr. Mabatwa (30), a chief technician with 15 years' experience.
- Mr. Sibanda (45), a foreman with 20 years' experience.
- Mr. Mabatwa (32), a chief technician.
- Mr. Sibanda (35), a miner with 15 years' experience.
- Mr. Mabatwa (30), a chief technician.
- Mr. Sibanda (45), a foreman with 25 years' experience.
- Mr. Mabatwa (32), a chief technician.
- Mr. Sibanda (35), a miner with 20 years' experience.

● Page 3: "Shift deaths" could be prevented.
Shaft deaths could be prevented, say experts

By Craig Charney

Many of South Africa’s mining deaths — including “break” accidents such as the Vaal Reefs disaster which took 31 lives this week — are preventable, say some experts.

The 2 km death fall of a cage carrying 31 miners at Vaal Reefs was only one of a large number of mining accidents last year.

The total number of men killed in the mines was 912 in 1978.

The number of people injured in that year was 25,288.

‘SA mines are among safest in the world’

South African mines are among the safest in the world, Mr D A Etheredge, president of the Chamber of Mines in South Africa, said today.

He was commenting on the address by the president of the Association of Mine Managers at the annual meeting of the association.

Mr Etheredge said South Africa was the only country to have mines with five-star ratings on the safety scale, and that seven gold and platinum mines had achieved a million-fatality-free shifts last year.

One aspect of achievements in safety has been the conducting of courses in loss control by the Prevention of Accidents Committee,” he said.

He said that the figures show that the South African mining industry is well on the way to achieving the safety goals set for the industry.

The accident at Vaal Reefs was “definitely preventable,” says a mining engineer with more than 40 years’ experience.

“It’s difficult to conceive of a circumstance where the conveyance could have stuck if it had been properly examined and properly maintained,” he said.

Mr Neville Huxham, a spokesman for Anglo American, the mine’s owners, said that he agreed with this, but could not agree to the claim that the accident was preventable.

The immediate cause of the accident, when the car broke free and snapped off the transit bar holding it to the host cable, lay either in a design flaw or corrosion missed in examinations of the car, he said.

Mr Huxham could not comment on this, as he said the matter was under investigation.

How safe are South African mines?

Mr Arnie Paulus, head of the Mine Workers Union, agreed that many unnecessary deaths occur.

“You can’t produce more every month and keep the standards up to date,” he says.

Chairman of Mines figures bear him out: accidents rise most frequently where output has risen most rapidly.

Statistics also show that the death rate per 1,000 workers on South African gold and coal mines is significantly higher than on coal mines in Britain. In 1975 the rate was 1.33 on South African gold mines, and 1.6 on coal mines here, while a mere 0.27 on British coal mines.

It’s not fair to compare deep, high pressure gold mines in South Africa to British coal mines, insists Mr E G Stokes, of the Chamber of Mines’ Accident Prevention Office.

“The rate on South African mines is improving,” while the rate on South African mines is getting worse,” says the retired engineer.

Besides, he adds, the South African coal mines are shallower than British ones, so they should be safer.
mining working costs which had posed critical problems for mines.

**FIRES**

"Today the capital cost of bringing a gold mine to the production stage can range up to R500-million and more, depending on size and other factors," he said.

"Such high capital costs obviously act as a deterrent to the expansion of existing mines, particularly those mining lower grade ore."

Mr Etheridge also stressed the urgent problem of the shortage of trained manpower.

He described it as "the most critical constraint on development."

"The high wastage rate among learner miners at the Government Miners' Training College and newly qualified miners among learner miners at the college has been a source of concern for a number of years."

He said that in December last year the industry requirements for over 200 men with blasting certificates could not be met.

"In the same month, the industry had a total shortfall of more than 1,000 skilled personnel, of which about 40 percent were artisans."

"The overall shortage is increasing gradually month by month as a result of increased mining activity and other developments in the economy."

The major reason, he says, are that South African mines blast ore instead of cutting it mechanically, use less adequate supports, and have coal pillars or long walls of gold ore shorting up ceilings rather than letting them crumble behind the working areas to relieve stress.

Such stress causes rock bursts, which account for more than half of all accidents.

Mr Stokes admits that coal mines could be mechanised, but suggests otherwise can be done in gold mines.

Explosives create instability, he says, but to his knowledge, technology has not yet supplied the answer.

Apartheid is another factor, says the retired engineer because skilled jobs have been restricted to white miners, whose numbers are limited, unskilled blacks often do their work, causing accidents in the process, he says.

In support of this, he claims black miners the four times as frequently in accidents, as one would expect, compared to white miners.

Mr Paulus, whose union is composed exclusively of white miners, disagrees. So does Mr Stokes, but he admits that Chamber of Mines figures put the death rate on the job for black miners at roughly twice that of their white counterparts.
Vaal dips after mine deaths

JOHANNESBURG — Gold shares closed lower in active trading, although select counters firm on the higher London bullion price, dealers said.

Shortly before the close, 26 gold counters were lower and 13 higher. Buffels fell 200 cents to 3 000 cents, Harmony 100 to 2 100 after 1 830, P. Steyn 100 to 3 525, P. Brand 150 to 3 475, and St. Helena 123 to 3 725.

Vaal Reefs, where 21 miners were killed yesterday, fell 125 to 3 700, but production was little affected. Despite annual reports yesterday from some Anglo mines, they followed the easier trend.

Platinum and coppers eased, and Collieries firmed, dealers said. Implats fell 10 to 830; Ruplats 10 to 500, and Lydplats 20 to 300. Messina fell 15 to 410, Palamun 25 to 1 575, while Vryheid rose 10c to 3 500 and Clydesdale five to 7 15.

Antimony counter Cons Murch fell 10 to 950 after 940.

In London, the market closed mixed, overshadowed by anxiety over United States silver contract problems, dealers said. At 1500 the FT index was down 1.8 at 4 21.3.

Gold shares ended up to $12 on either side of overnight levels. Government bonds showed closing falls ranging to 3.5 point amid speculation of higher United States prime rates.

Oils were mixed after early strength while banks also pared opening gains.

In Salisbury, the market closed the week's trading on a quiet note in extremely low turnover.

The industrial index remained virtually unchanged at 336.88. SPC added 10 cents to trade at 240 whilst small improvements were seen in CIH, Clan Gullivers and Hippo Valley.

The mining index closed at 203.95 (203.62).

SAPA-RNS

Mutual funds

JOHANNESBURG — Yesterday's quotations for Unit Trusts (under headings buyers, sellers, yield) were:

<table>
<thead>
<tr>
<th>Mutual Fund</th>
<th>Buyers</th>
<th>Sellers</th>
<th>Yield</th>
</tr>
</thead>
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<tr>
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<td>316.47</td>
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</tr>
</tbody>
</table>

SAPA
NO SAFETY mechanism on earth could have saved the lives of the 31 Vaal Reefs miners who were crushed to death when a cage plunged more than 2 km to destruction.

The mine manager, Mr John Eplett, said this yesterday, adding: "I know of no system that can stop a cage once it is in free fall.

"All our safety mechanisms are attached to either the rope or the hoisting mechanism.

"There is no system available anywhere in the world that will stop a cage once it is no longer attached to the rope."

Three whites and 28 blacks plunged more than 3 km to their deaths in the double-decker mine cage after it snapped its bridle in the No 2 shaft of the world's largest gold mine.

□ □ □

The whites who died in the accident were: Mr Johannes Bromhorst, a control room operator from Orkney; Mr Pieter Croujle, a developer from Stilfontein; and Mr Eric Jungman, a developer from Orkney. A full list of the dead blacks will not be released before their next of kin have been informed.

Mr Eplett said he hoped the exact cause of the accident would become clear during the investigation.

"It was that one in a million accident," he said. "I still find it inconceivable that it actually happened.

"We will do everything within our power to prevent it from happening again.

"The fact remains, however, that there is no emergency system known to man that will stop a cage once it has broken free."

A spokesman for the mine said a full investigation was being made.

Nothing could save miners

The death cage, known to miners as a Mary Ann, hurtled down the No 2 shaft at more than 200 km/h early on Thursday morning.

The trapped men fell for nearly 30 seconds before their bodies were shattered beyond recognition when the cage hit bottom.

The tragedy was probably caused by a cable that had failed on the roof of the cage after it had stopped — for no reason — about 15 m from the surface.

□ □ □

The obstruction that had stopped the cage suddenly cleared and the Mary Ann fell abruptly. When it reached the end of the shaft, the force was so great it ripped the bridle of the top of the cage and sent it on its path of death.

The death cage had transported nearly half a million miners during its lifetime and was due for replacement, the spokesman said. "The Mary Ann is replaced every six months, irrespective of its condition," he said.
200 Kilometers an Hour

FREE FALL

When the man and the woman

The families they left behind

The men who died... and

The wounded took shelter in the

THEY DISREGARD AT THEIR OWN

when the war is over, in a matter of a few months, when the war is over, in a number of years, when the war is over, in a century, when the war is over, in a thousand years, when the war is over, in a million years, when the war is over, in an infinite time, when the war is over, in a eternity, when the war is over, in a lifetime, when the war is over, in a moment, when the war is over, in a second, when the war is over, in a fraction of a second, when the war is over, in a flash, when the war is over, in a blink of an eye, when the war is over, in a heartbeat, when the war is over, in a breath, when the war is over, in a moment of silence, when the war is over, in a pause of time, when the war is over, in a moment of stillness, when the war is over, in a moment of peace, when the war is over, in a moment of tranquility, when the war is over, in a moment of quiet, when the war is over, in a moment of silence.
MINE accidents occur every month in South Africa and gold mines in particular account for 90 percent of the deaths.

In 1978 alone 877 people died in mine accidents — on average of 7 per month — according to the Department of Mines' annual report tabled in Parliament last year.

There were also 24,772 people injured in mine accidents during that period.

The double-decker cage incident at the Vaal Reefs mine in Orkney near Klerksdorp this week in which 31 people died when the cage plunged more than two kilometres down a shaft was the third major accident at this mine within 12 months.

In April last year ten people were killed and 37 injured in a rockfall at the mine.

And in December last year 41 miners were killed when they were trapped by a blaze more than 2,000 metres underground.

According to unconfirmed reports 41 people died in mine accidents this month, eight of them at the Western Deep Levels near Carletonville when a pressure burst occurred.

In February this year three people died in a pressure burst at the Western Deep Levels, which suggests rock falls and pressure bursts account for most of the minor accidents in mines.

In 1977 alone 654 people died in mine accidents while 20,781 were injured, according to the Department of Mines report.

The accident death rate in 1978 was 1.28 per 1,000 workers.

The department said then that the high death rate showed that accident prevention efforts had not come up to expectations and that there was a need to step up the prevention efforts if deaths in mines were to be reduced.

A day after the Vaal Reefs cage crash this week another miner died and ten others were injured during a rock burst in a shaft about 2,000 metres below surface at the Elandsrand Gold Mines near Carletonville.

The incident occurred on Friday at ten in the morning. Officials of the mine said the ten injured were not seriously hurt.

Officials also said a government inquiry into the Mary-Ann, the double-decker 40-capacity cage which plunged two km at the Vaal Reefs No 2 shaft, was taking place to ascertain the real cause of the accident.

The inquiry is headed by Mr E Creedy, inspect of machinery in Klerksdorp.

The Many-Ann, a side cage running next to the main cage, went down with 31 people in it on Thursday morning.

The cage was said to have stuck but after leaving surface and later snapped off the bridge and plunged more than 2,000 metres to the bottom of the shaft.
Second tragedy in mine since 1978

BY SARAH HETHERINGTON
THE Vaal Reefs gold mine where 31 miners plunged to their death in a lift cage last Thursday was hit by an even bigger tragedy in December 1978 when 41 miners died in an underground blast.

And last year 63 miners died on the Vaal Reefs mine, according to the annual chairman's report published on Friday.
The largest gold mine in the world, Vaal Reefs has a workforce of 40,000.

"Mining is a dangerous business and there is always an element of risk," Mr N B Hoxham, a public relations spokesman for the Anglo American Corporation, said.

"Vaal Reefs—one mine—produces more gold than Canada, the third-largest gold-producing country in the world. Sixty-six people dead in a year sounds a lot, but if you think of Canada, the figures would be for the whole country," he said.

"I'm not trying to gloss over the deaths, all deaths are to be regretted".

The majority of deaths on the mine in a given year usually result from rockfalls and other seismic activity.

In 1979, of the total 63 deaths on the mine, 43 were a result of rock movements and falls of ground. The rest were the result of accidents.

The 41 miners lost in the underground fire in December 1978 brought the figure for that year to 102 dead on the mine.

The fire was the worst disaster in the mine's history.

According to a report tabled in parliament, 654 people were killed and 20,781 injured on the gold mines in 1978.

Mr Hoxham said mining was a labour-intensive industry, and inevitably a percentage of the workforce would be involved in accidents.

"Inquest courts usually find that the deaths should not have happened, but we are dealing with people and there is a human element that causes accidents."

"The company spends a great deal on safety measures, and research aimed at the prevention of accidents."

Mr Hoxham said Thursday's accident and the death of the 31 people was to be regretted.

"It is a complicated and dangerous exercise moving 60,000 people around underground in what is already a dangerous business."

The accident occurred when the cage was initially obstructed, then, when cleared, the force of the cage falling while taking up the slack on the cable broke the transom across the top of the cage, breaking it away from the cable.

The precise cause of the accident will be the subject of a special inquiry.

Mr D A Etheridge, chairman of Vaal Reefs, said in the Anglo American chairman's report, published last week, that "everything possible was being done to minimize the threat to life and production posed by seismic events."

More sensitive seismic recording equipment had been installed and radon gas emissions were being monitored as a possible early-warning signal. Support would be improved, and mining practices were being changed to leave pillars, which would increase stability.

Mr Hoxham said there would always be accidents in mines.

"It was an ongoing process."

One person was killed and 20 injured on Friday in a rock burst at the Elandrand gold mine near Carletonville.
Budget and spending policy is the budget shortfall $1.6 billion.

The budget shortfall is the actual amount of cabinet.

Is it possible to ensure a budget surplus?

All the dead named...
Memorial service for

mine disaster victims

Mr. Piet Coetsee was buried today.
The funeral of Mr. Erich Jungmann is tomorrow and Mr. Jan Bronkhorst on Thursday.

Funeral arrangements are still being made for the 28 blacks.

They were Mr. Johannes Kolingu (Angolan), Mr. Onob Tumo (Motsawana), Mr. Sarwe Mzama (Xhsa), Mr. Nafula Mungunabe, (Shangaan), Mr. Rechishe Sesake (Motsawana), Mr. Edwin Sebitshoana (Motsawana), Mr. Zandile Po-
sa (Xhosa), Mr. Elias Makhe (Xhosa), Mr. Adri-
anno Mabutamo (Shangaan), M. Nwesile Vokwana (Xhosa),
Mr. Soliu Mazonu (Xhosa), Mr. Masambana Muntsha (Xhosa), Mr. Aaron Gembina (Xhosa), Mr. Laphapang Moselana (Motsawana), Mr. John Selele (Motsawana), Mr. Maxwell September (Xhosa), Mr. Zamile Ngcolomba (Xhosa), Mr. Mapungu-
ngwa Mankahla (Xhosa), Mr. Anthony Tshane (Shan-
gaan),
The Xhosa were Mr. David Selelele, Mr. Tatumu Vundu, Mr. Siwumku Tshana, Mr. Ndop Ntshimo, Mr. Mandu Selelele, Mr. Nkhuza Dukhwe, Mr. Mandu-
dle Mbambelu, Sapa.
No race barriers down mines in times of trouble

By Margaret Floyd
West Rand Bureau

Deep in the bowels of the earth miners know no racial barriers when lives are endangered. This was shown by three men at the Kloof gold mine, near Westmaria, who received bravery awards recently.

For their valiant efforts in saving the life of a fellow miner, Mr. Segunda Sepombo, who was trapped in a 15.5-foot-deep shaft, they were presented with a gold watch and a citation by the Chamber of Mines.

The first to notice Mr. Charles William de Bruin raising himself up was a ganger who saved the life of a fellow miner who was trapped in a different shaft. Mr. de Bruin lowered himself down the hot eleven-foot-deep shaft on a rope to save Mr. Segunda Sepombo, who was trapped 22 metres under ground.

Mr. de Bruin lowered himself down the hot eleven-foot-deep shaft on a rope to save Mr. Segunda Sepombo, who was trapped 22 metres under ground.

He was barely conscious with severely burned arms and head. He realized it would be impossible to move him up the impaled man and through the mine gaff chute to the surface.

He would have to be carried, but first he needed attention. Mr. de Bruin climbed back up the rope to get help. On his return, he gave first aid.

He strapped Mr. Sepombo's head and back, and once again climbed down the mine, helping the man to walk up the dangerous area. The injured man was conveyed to a hospital for treatment.

In another incident, Mr. Moleme Moleme and Mr. Ntshumane Ntshumane were trapped behind when all the other workers had fled to safety to save Mr. Bon Chambers, a ganger who was trapped at the bottom of the shaft, and whose shoulders were crushed. The rescue workers had to be called out from far away, and it took them hours to reach the scene.

They worked hard and managed to free Mr. Sepombo just before the sun was setting. They took him to the hospital, where he was treated. He would have probably died if he had not been rescued in time.
Dead miners post mortem are named

The names of the black mineworkers killed in a 2,000-metre death plunge in the Van Reefs Gold Mine near Orkney last Thursday, have now been released by the Anglo American Corporation.

They are Mr Johannes Kotungu, Angolan, Mr Oboboi Tumo, Mr Sizwe Majamani, Mr Ntaitai Mungumbe, Mr Sejiso Sefako, Mr Edwin Sebitloana.

Mr Zandile Poswa, Mr Elias Mkuhisi, Mr Adriano Mabuzane, Mr Siyukile Vokwana, Mr Silulul Magenu, Mr Mazantsana Mantisana, Mr Aaron Gebenga, Mr Lipahang Mose-

ligana.

Mr John Selete, Mr Maxwell September, Mr Zimile Ngcolomba, Mr Mzwunyengwa Mankahla and Mr An-
tomo Trivane.

Earlier

Earlier the names of the following eight were released:

Mr David Suletile, Mr Tatumu Vundu, Mr Snuuru Tobana, Mr Thembillizwe Mgezezi, Mr Mapo Mga-
mbani, Mr Mouswa Juberwe, Mr Nsobo Dubase and Mr Mzwanile Xibambela.

Sapa.
32. The differences between the load factors of the Cape Western Undertaking compared to certain other undertakings for the period 1972 - 1977 are clear from the following figures:

<table>
<thead>
<tr>
<th>Year</th>
<th>Cape Western</th>
<th>Eastern Transvaal</th>
<th>Natal</th>
<th>Rand and OBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1972</td>
<td>0.71</td>
<td>0.72</td>
<td>0.71</td>
<td>0.76</td>
</tr>
<tr>
<td>1973</td>
<td>0.79</td>
<td>0.82</td>
<td>0.76</td>
<td>0.77</td>
</tr>
<tr>
<td>1974</td>
<td>0.82</td>
<td>0.83</td>
<td>0.72</td>
<td>0.74</td>
</tr>
<tr>
<td>1975</td>
<td>0.82</td>
<td>0.83</td>
<td>0.74</td>
<td>0.76</td>
</tr>
<tr>
<td>1976</td>
<td>0.72</td>
<td>0.72</td>
<td>0.74</td>
<td>0.75</td>
</tr>
</tbody>
</table>

33. It should be kept in mind that the average load factor of a group of consumers (say Tariff A) in an undertaking is lower than that of the specific undertaking. This results from the diversity in demand which causes a lower maximum demand for the undertaking as a whole. The average monthly load factor of Tariff A consumers in 1976 was as follows for the relevant undertakings:

- Cape Western (0.61)
- Eastern Transvaal (0.70)
- Natal (0.64)
- Rand and OBS (0.72)

The lower load factor in the Cape and Rand and OBS undertakings compared with the Rand and OBS Undertaking results in an increase of about 10 per cent in the costs per kWh for large consumers in the Cape Western Undertaking.
Miners' service

THE chairman of the Anglo American Corporation, Mr Harry Oppenheimer, and Mr Dennis Etheridge, president of the Chamber of Mines and chairman of Vaal Reefs Gold Mine, extended their sympathies yesterday to the relatives and friends of the 31 miners who died in the shaft accident at Vaal Reefs near Klerksdorp on March 27.

Conveying this to several thousand mine personnel who attended a memorial service at the mine yesterday, Mr Gerald Langton, a director of Vaal Reefs said: "Shaft accidents of this type are rare and this one will inevitably lead to the development of a new type of safety device." - Sapu.
Mine cage - no one on board - plunges to bottom

East Rand Bureau

Only a few hours before 73 men were due to get into it, a lift cage containing mining material plunged more than 700 m down a shaft at the EPPMo gold mine in Boksburg today.

Nobody was on board and if there had been people in the lift, the accident would not have happened, a mine spokesman said.

This was the second mine cage to plunge down a shaft in South Africa in the past week. Last week 31 miners died at the Vaal Reefs mine in Klerksdorp after a lift fell 2 km down a shaft.

"Had there been people on board the operation that was being carried out at the time could not have been undertaken. There are mining regulations to prevent this from happening," the spokesman said.

When the accident happened, one of two cages that run simultaneously was held on a brake while the other was being brought into line with the lip of a shaft.

The cage on the brake started to move and burnt out its brakes. The operator tried to stop it by using the reverse power braking system, but the power tripped out.

There was nothing then to stop the cage and it fell to the bottom.

This was a different accident from the one at Klerksdorp, where a cage jammed, then broke free.
Apartheid lives on

APARENTLY the bodies of the 31 miners killed in last week's mine shaft plunge at Vaal Reefs were so badly mutilated that victims could only be identified by the arm bracelets they wore.

It proved so difficult to piece together their remains that the 28 black miners were buried together in a mass grave.

The three white miners, however, were buried in separate ceremonies.

Those men worked together, died together — and will spend the rest of eternity in racially-segregated cemeteries.

In the dark

I'M TOLD (since I don't go to these things myself) that at the launching this week of the Government's Manpower 2000 programme (which is their way of making labour exploitation sound modern) the organisers had set up a screen and movie projector to show a film on what a great economy the country has.

Waiting expectantly for new and stirring insights were, amongst others, the State President, the Minister of "Manpower", bantustan government officials and their businessmen buddies, and some foreign newsmen.

The film began to roll. A pretty girl standing beside a row of gold bars adorned the screen and a voice began:

"South Africa has one of the healthiest economies in the world and with the 1980s come conditions for a boom..."

The sound died, the projector rolled gradually to a halt and everyone was left in the dark.

Someone apologised to the State President and distinguished guests and that was the end of the movie.

There must be a moral in that somewhere...
Beneath the surface and behind the factory walls

By ZWELA SISulu

SOMEONE dies in a South African factory or mine every 24 hours on average, according to figures released this week by the National Occupation Safety Association and the Workmen’s Compensation Commissioner.

And every hour of every day 40 people are injured. Of these, about four are permanently disabled.

This week’s figures show that at least 2,500 people die a year in South African industrial accidents.

The figures are for 1975 and because of the long procedure involved in processing them, the 1976 figures are only expected to be ready in July.

A total of 349,000 injuries were recorded, and 30,000 cases of permanent disablement. The injury figures represent more than 2% of the entire South African workforce.

An amount of R43 million was paid out under the Workmen’s Compensation Act for the injuries, permanent disablement and deaths at work.

The managing director of the Safety Association, Mr. Bannya Matthiesen, said in the majority of cases accidents occurred as a result of the worker’s ignorance.

“I think the record of the industry in South Africa is good and I am not aware of a lower rate of industrial accidents anywhere in the world,” he said.

A STORY OF DEATH AND OF AGONY

In all the various accident categories, black workers were affected most but that was because they involved job done mainly by black people, Mr. Matthiesen said.

The mining industry accounted for a large percentage of the deaths. In 1977, 654 people died in mine accidents, and in 1978 at least 677 died.

The overall injury figures for 1975 and 1974 were 344,000 and 343,000.

Mr. Matthiesen added that workers in South Africa had sufficient protection against accidents. Legislation safeguards the protection of workers through the Factory Act and various inspectors in mines and industry.

His organisation, he said, had initiated training courses in safety.

He added: “We have a better record than the United States with an average in pure rate of 2.4% of the workforce and Canada with a rate of 4%. However, the South Africanfigure of 2.2% excludes the mines. — one of the major causes of death.”

A spokesman for the Workmen’s Compensation Commissioner said the figures for 1976 would be available in July.
Mary Ann mine mystery unsolved

West Rand Bureau
The Vaal Reefs Mine disaster, in which 31 men died when their lift cage plunged 2 km down a shaft, remains shrouded in mystery.

A joint inquest and inquiry court sat for eight hours yesterday and returned a verdict of "cause unknown."

But sabotage and negligence were ruled out by the presiding magistrate, Mr G J Schoeman.

He found it was most likely that a small stone or rock had caused the Mary Ann cage to jam on its way down while 13 m of rope uncoiled in the shaft above.

SNAPPED

When subsequent pressure dislodged the object, the cage fell free and the shock snapped the heavy steel transom suspending the Mary Ann.

The last moments of the Mary Ann and her crew were sketched in evidence yesterday. This is a reconstruction of what happened early on March 27.

At Shaft No 1, bankerman Mr Johannes Combrink loads 28 blacks in the top deck and three whites in the bottom deck of the Mary Ann. He signals engine winderdriver, Mr Dennis Jolley, to lower the 5.45 am shift.

Mr Jolley lowers the Mary Ann and sees it is moving smoothly. Then the slack rope alarm begins to sound. Mr Jolley instinctively applies the brakes and trips the safety circuit as warning lights flash.

SCREAM

As Mr Combrink writes "5.45 am" in his log-book, he hears Mr Johannes Bronkhorst scream from the cage "Hannes, maak oop, maak oop."

Mr Combrink signals six times, indicating "Don't move. He then triggers the emergency signal to stop the shift. He runs to the sub-bank gates, but knows there is nothing he can do to save the men.

Mr Jolley checks the slack rope. There is a sudden whip followed by a loud bang. Mr Jolley peers down the shaft to find the rope dangling and the Mary Ann missing.

A chief witness, Acting Engineering Manager Mr Ronald McKechnie suggested sabotage may have been a possible cause of the accident.
JOHANNESBURG — No blame was found in the Vaal Reefs mine disaster, which claimed the lives of 31 men when their lift cage plunged 2 km down a shaft, an inquest court heard on Tuesday.

Sabotage and negligence were ruled out by the magistrate, Mr. G. J. Schoeman. He said the most likely cause of the accident was that a stone had caused the cage to jam on its way down. The cage then fell free and the shock snapped the steel transom holding it.

-DDC
Mine lives not covered

By JOE THILOLO
THE LIVES of the people largely responsible for the country's present prosperity, the black miners, are not insured.

All their families get if they die in accidents on the mines — as happened when 31 plunged to death at Vaal Reefs Gold Mine recently — are payouts in terms of the Workmen's Compensation Act. Whites are also paid out in terms of this Act and get an additional R10 000 life cover.

And a Chamber of Mines official told POST this week that the average payout to white miners in terms of the Act is five times that paid out to black miners.

Investigations followed the announcement that the families of the 28 blacks killed in the shaft accident on March 27 would be paid in terms of the Act.

The Rand Mutual Assurance Company is the Chamber of Mines' compensation agency under the Act and covers 584 000 blacks and 68 000 whites.

There are 652 000 miners in the companies in the chamber, which represents 90 percent of the mining industry.

According to a Department of Mines report last year, 877 people died in mine accidents in 1978 and 654 in 1977.

In 1978, 24 772 people were injured and 20 781 the year before.

The manager of Rand Mutual Assurance, Mr D F Thompson, said: "The situation is not as bad as it looks. The company pays out large sums to the families of the miners, but the average is lower than that of white families because of the smaller family size."

Mr Thompson said the company pays out 70 percent of its claims in full and that the remaining 30 percent is paid out in instalments of R150 a month for the miner for life or R10 000 for the widow.

Workers' Compensation Act provides for a minimum of R4 800 for married miners and R6 800 for single miners.

This compensation is for both blacks and whites.

Mr Molteno said the present wage gap — "in fact, we should call it the skills gap" — in the mines is 2:1 to 1 in favour of whites.

The average cash wage for black underground workers is R150. They get another R60 a month in kind.

Married miners, however, have a life cover of R10 000, according to another chamber official.

"The miner contributes R4 800 and the company another R4 800 a month for the premium," said Mr Chris Corner, of the chamber's public relations office. "This covers the miner for R10 000."

Mr Corner said the chamber did not have a group life cover for the miners, but believed some companies might have it.

"We could check this with the various members of the chamber."

But when we phoned the public relations department of Vaal Reefs, Mr Les Bruns said his company did not have such group cover.

"As far as I know, you will not find it at any mine," he said.

Workers in other industries generally have pension benefits which are tied to life cover.

Most black mine workers are contract labourers and do not have pension benefits.

Miners' lives not insured

This is the compensation provided for both blacks and whites.

- For the miner: R4 800 and R10 000 for a life cover.
- For the widow: R60 a month in kind.

For the premium: R4 800 and R10 000 for the miner.

No part of an answer book is to be torn out.

All answer books must be handed to the commissioner or to an invigilator before leaving the examination.

Any dishonesty will render the candidate liable to disqualification and to possible exclusion from the University.

3 Names must be printed on each separate sheet (e.g. graph paper) where sheets additional to examination book(s) are used.

4 Do not write in the left hand margin.
SA mining deaths dropped in 1979

CAPE TOWN — Though 872 people were killed in South Africa’s mines last year, the toll was less than in 1978, the Department of Mines said yesterday.

In 1979 there were also 22,997 people injured — an annual report tabled in Parliament.

The death rate was 1.16 a thousand, and the injury rate 72 a thousand. The rates for 1978 were 1.28 and 32.

Since 1973 the death rate has shown a yearly deterioration, the only exception being 1978.

The indications are that the improvements this year should be seen as the first sign of a reversal of this trend.

Provided that the loss control programmes are pursued with vigour and dedication, there is no reason why the rates should not follow this trend and again equal or surpass the record low levels achieved in 1970 and 1973.

The same applies to the accident rate figures: the department said. On coal mines the death rate increased although the injury rate showed a decrease. The department said this could probably be ascribed to the increased use of mechanized equipment.

Five gold mines, two coal mines, and two platinum mines recorded more than a million consecutive man-shifts underground without fatal accidents.

The report revealed that 501 of the people killed — 67% — were on gold mines.

The largest number of casualties on gold mines were caused by falls of ground and accounted for 58% of the fatalities, or 136 deaths, while trucks and tramway accidents caused 91 deaths.

On coal mines, where 112 people died, 36% of the fatalities were caused by falls to ground and 21% were due to trucks and tramways.

The department said the office of the Government Mining Engineer conducted 3,760 underground and 2,520 surface inspections. These included 819 surprise inspections where no warning was given. There were also 2,018 official visits by inspectors.

Apart from disciplinary action taken by management in case of minor infringements, 978 people faced charges in courts of magistrates' courts and 58 in magistrates courts.

— Buo
Miners warned on death compensation

The Medical Bureau for Occupational Diseases has warned miners that compensation for death during service was not automatic, and has urged them to take out life assurance to provide for their widows. According to the bureau's annual report, tabled in Parliament this week, some miners regarded it as certain that compensation would be awarded to their widows. In fact about 90% of miners with long underground service do not show any sign of compensable disease at postmortem examinations, and in these cases no compensation is payable.

Reported by P.J. at Stafford and Staff.
Injured Welkom miners named

Staff Reporter

The names of 10 miners - six blacks and four whites - injured in a methane gas explosion at Free State Newspapers mine No 3 shaft in Welkom at the weekend have been released.

The four white miners, all from Welkom, are Mr. Lucas Struydom, Mr. Kenneth Foster, Mr. David Griesel and Mr. Henry Mocan.

They are all in satisfactory conditions in the Cottershoe Chamber of Mines Hospital in Johannesburg. Hospital officials yesterday refused to allow the men to be interviewed or photographed.

The six black miners are all in satisfactory conditions in the Ernest Oppenheimer Mine Hos-

pital in Welkom.

They are Mr. Maluleke Lulala; Mr. Xhokwakaza Molekane, all from the Transkei; Mr. Xolamile Seokhomo of Masizu, Mr. Sekhola Mankoe of Lekoma, and Mr. Molekane of Mqonga of KwaZulu.

Details of the explosion have not yet been revealed, but a spokesman for Anglo American Corporation said in Johannesburg yesterday that the incident was being investigated by an inspector of mines in Welkom.

The whites were transferred to the Cottershoe Hospital early this week, after initially being treated at the Provincial Hospital in Welkom.

Two black miners were killed and two others injured in an underground explosion at the same shaft last week.
Six die, 11 injured in mine blasts

ANNA NEVRA News Service

WINSTON K — Six people — four adults and two children — have been killed and another 11 people injured in two separate landmine incidents in Ovamboland, northern SWA.

The six who died have not yet been identified. All died at a single incident when their vehicle struck a mine near Oshikango, about 20 km northeast of Ongangwa. They all lived in the area.

INJURED

In the same incident, another three people were seriously injured and taken to Oshakati State Hospital for treatment.

The latest deaths mean that more than half the civilian casualties in Ovamboland so far this year have been through landmine incidents.

In a second landmine blast about 40 km south of Kavango on the Kamanjab road in northwestern Ovamboland, eight local people were injured five seriously.
Kloof fire
hit 20pc of output area

Financial Reporter

THE AREA affected by an underground fire at the end of last week in Kloof gold mine was opened up during the weekend and it was found that the fire had burnt itself out. The fire affected about 20% of the mine’s production area.

Small areas of localized high rock temperatures and some pockets of gas remain. Slop ing in the upper levels of the longwall is expected to resume today, and production in the remainder will be resumed gradually over a fairly short period.

The fire broke out in the 65 longwall stope on Thursday night and was promptly sealed off. Fewer fires are occurring on South African gold mines because of greater attention to loss control procedures.

The Chamber of Mines’ rescue training service reports that there were 138 fires last year, a 23% reduction on the number reported in 1978.

The number of times on which staff of the rescue training service were called out to help in extinguishing a serious blaze dropped by about 25%.

The RTS believes that this improvement can be attributed to a greater awareness of the financial losses involved, which, in turn, has led to greater efforts being made to adhere to strict loss control procedures and to the elimination of the common causes of serious fires.

During 1979 electric cable or switchbox failures and faults, probably often the result of falls of hanging, were responsible for a large proportion of the fires.

The next most important causes were accidents involving the use of cutting torches.

Project: PORGAND


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DECLARATION OF CONTROLLED MINE AND RISK WORK

The Minister of Mineral and Energy Affairs has, in terms of section 10 of the Occupational Diseases in Mines and Works Act, 1973 (Act 78 of 1973), declared the following mines to be controlled mines with effect from 1 July 1980.

(a) The mine known as Saldanha Quarry (Pty) Ltd, on the farm Besaanskip 970, Remainder of Portion 2 of the farm De Vrieswalen 405-40 (No. 177), situated in the Magisterial District of Vredenburg, Cape Province, which is at present being worked by Saldanha Quarry (Pty) Ltd, P.O. Box 300, Vredenburg 7338.

(b) Where moving, transferring or handling of stone, rock, ore or minerals takes place
(c) Where crushing, screening or classification of stone, rock, ore or minerals takes place, except where this is carried out under water,
(d) On waste dumps, piles or ore piles, other than where the waste or ore has been or is being deposited in the form of slime, including the place where such dumps or piles have already been deposited,
(e) In drill sharpening shops or any other place where drills are sharpened in a building,
(f) Where crushed samples are praded in a dry state, and
(g) At any rock-drilling work

VERKLARING TOT BI-HEFDERDE MYNE EN RISIKOWERK

Die Minister van Mineraal- en Energenesake het kragtens artikel 10 van die Wet op Bedryfsekties in Myne en Bedrywe, 1973 (Wet 78 van 1973), die volgende myne met ingang van 1 Julie 1980 tot 'n behoerde myne verklaar.

(a) Die myn bekend as Saldanha Quarry (Pty) Ltd, op die plaas Besaanskip 970, Remainder of Portion 2 van die plaas De Vrieswalen 405-40 (No. 177), geleë in die magisterale gebied Vredenburg, Kaapstad, wat tans deur Saldanha Quarry (Pty) Ltd, Postbus 300, Vredenburg, 7338, ontgin word.

(b) Die volgende werk by genoemde myn met ingang van dieselfde datum (1 Julie 1980) kragtens artikel 13 van genoemde Wet deur die Minister tot riskework verklaar:

1. Buitewerks
(a) Waar die verskuwing, oorplasing of hantering van kruis, rots of mineralse plaasvind,
(b) Waar die verskuwing, oorplasing of hantering van kruis, rots of mineralse plaasvind, uitsonderlik waar dit onder water gekoop is,
(c) Op uitstapies stapels of stapsstapels, uitsonderlik waar die uitkloof of erts in die vorm van dik peetvorm is of word, insluitende die plekke waar handlike stapels, leden, peetvorm is,
(d) In boorsgewerkt of enige ander plek waar buur in 'n gebou skrapemekaar word;
(e) Waar vergrendelde monsters, in 'n droe toestand gepreggaar word, en
(f) By enige rotborwerk.
(b) the mine known as Natal Iron Ore and Coal Mines (Pty) Ltd (Heritage Mine), on the farm Geluk en Weltevreden 300, situated in the Magisterial District of Vryheid, Province of Natal, which is at present being worked by Natal Iron Ore and Coal Mines (Pty) Ltd, P.O. Box 837, Vryheid, 3100.

(c) the mine known as Rietspuit Opencast Services (Pty) Ltd, on the farms Hartbeesfontein 39 IS en Roodepoort 40 IS, situated in the Magisterial District of Bethal, Province of the Transvaal, which is at present being worked by Rietspuit Opencast Services (Pty) Ltd, P.O. Box 93, Ouges, 2230.

(d) the mine known as South African Coal Estates (Witbank) Ltd (Kleinkopje Colliery), on the farms Kleinkopje 15 IS en Klippan 332 JS, situated in the Magisterial District of Witbank, Province of the Transvaal, which is at present being worked by South African Coal Estates (Witbank) Ltd, P.O. Box 200, Witbank, 1035.

The following work at the said mines has been declared risk work by the Minister in terms of section 13 of the said Act, with effect from the same date (i.e. 1 July 1980).

1 **Excavations**

In any underground or open working.

2 **On the surface**

(a) Where moving, transferring or handling of stone, rock, coal or other minerals takes place,

(b) where crushing, screening or classification of stone, rock, coal or other minerals takes place, except where this is carried out under water,

(c) on waste dumps, piles or mineral piles, other than where the waste or minerals have been or are being deposited in the form of slime, including the places where such dumps, or piles, have already been deposited,

(d) in drill sharpening shops or any other place where drills are sharpened in a building,

(e) in any change-house where persons who perform risk work change their clothing,

(f) in coal laboratories, except in separately ventilated parts thereof where only wet analyses are done and no treatment of dry stone, rock, coal or other minerals takes place,

(g) where samples of crushed coal or other minerals are graded in a dry state, and

(h) at any rock-drilling work.

(b) die myn bekend as Natal Iron Ore and Coal Mines (Pty) Ltd (Heritage Mine), op die plase Geluk en Weltevreden 300, geleë in die landdrosdistrik Vryheid, provinsie Natal, wat tans deur Natal Iron Ore and Coal Mines (Pty) Ltd, Posbus 837 Vryheid 3100, ontgin word.

(c) die myn bekend as Rietspuit Opencast Services (Pty) Ltd, op die plase Hartbeesfontein 39 IS en Roodepoort 40 IS, geleë in die landdrosdistrik Bethal, provinsie Natal, wat tans deur Rietspuit Opencast Services (Pty) Ltd, Posbus 93, Ouges 2230, ontgin word.

(d) die myn bekend as South African Coal Estates (Witbank) Ltd (Kleinkopje Colliery), op die plase Kleinkopje 15 IS en Klippan 332 IS, geleë in die landdrosdistrik Witbank, provinsie Transvaal, wat tans deur South African Coal Estates (Witbank) Ltd, Posbus 200, Witbank, 1035, ontgin word.

Die volgende werk by die genoemde myne is met ingang van die gestelde datum (1 Julie 1980) gekraag as werk wat volgens die Wet deur die Minister tot risikowerk verklaar word:

1 **Uitgrawings**

In enige ondergrondse of op delfplek.

2 **Bakronds**

(a) Waar die verskuwing, oorplasing of hantering van klip, rots, steenkool of ander minerale plaas vind,

(b) waar die vergunning, of die klasifisering van klip, rots, steenkool of ander minerale plaas vind, uitgesond onder die vorm van slaap geskied,

(c) op ontskothope, stapels of minerale stapels, uitgesond onder die uitskot van minerale in die vorm van slaap geskied,

(d) in boorslyp winkels of enige ander plek waar boor in 'n gebou skerp gemaak word,

(e) in enige kleede huis waar persone wat risikowerk verrig, hul verkleed,

(f) in steenkool laboratoriums, uitgesond onder die afsonderlike geventileerde dele daarvan, waar slegs nat ontledings en geen behandeling van drie klip, rots, steenkool of ander minerale plaas vind nie,

(g) waar monsters van vergroonde steenkool of ander minerale in 'n droë toestand gegradeer word, en

(h) by enige rotsboorwerk.
More for mine disease victims

THE SENATE. — The Minister of Energy and Mineral Affairs, Mr F W De Klerk, yesterday announced a 10% increase in benefits payable in terms of the Occupational Diseases in Mines and Works Act.

Introducing the Second Reading of the Occupational Diseases in Mines and Works Amendment Bill, he said the increase would be effective from July 1.

The Minister said a similar increase had been granted on October 1 last year which brought the total increase since September last year to 20%.

The maximum monthly pension of R183 payable up to September 30, 1979, would be increased to R223 from July 1 this year, while the previous lump sum payment of R12 938 for first grade certification was increased to R15 972.

People certified after July 1 this year in the second grade would receive a lump sum payment of R13 958 instead of the previous R19 800.

The Bill was taken through all its stages and read a third time with Opposition support. — Sapa.
Miner trapped by fall after tremor

A Stilfontein miner is trapped underground after a rockfall caused by a severe earth tremor, registering 4.8 on the Richter Scale which shook the Reef and Pretoria early today.

A Stilfontein Mine spokesman said several black miners had been taken to the Duff Scott Hospital in Stilfontein after the rockfall.

One man is seriously injured and three others are in a satisfactory condition, but one trapped miner still has to be rescued from the shaft.

The tremor lasted for 14 minutes in Pretoria and for two in Stilfontein, the head of the seismological unit at Buffelsfontein Mine, Mr P van den Heever, said today.

In Johannesburg, 155 km away, a Wits University seismological recorder was saturated because of the energy released by the tremor and did not make a reading.
Miner hurt, another missing in rockfall

SEVERAL earth tremors were recorded in the Transvaal and Free State yesterday morning.

The most severe, which registered 4.6 on the Richter scale, was at Klerksdorp.

The most severe tremor recorded in South Africa — in the Transvaal — measured 5.2 on the Richter scale.

The Klerksdorp tremor caused a rockfall at Balfourown Mine. A black miner was seriously injured and another is missing. Production at the mine was not affected and there was no surface damage.

The SABC reported:

A tremor was felt in Pretoria, and one at Vrededorp in the northern Free State. At Welkom, a light tremor was felt.

SAPA
Five miners presented with bravery awards

A drum of steel winding rope — 26 tons of it — plunged down No 3 shaft.

Beneath it four men worked at the 27 pump station.

But the drum stopped before it crushed them and balanced precariously 1,409 m below the surface.

Deep in the Kloof Gold Mine the four were trapped.

Many attempts were made to reach them but without success.

Then five men — Mr C G Wheeler, Mr J J Havenza, Mr J J Viljoen, Mr J C Joubert and Mr B Canwood — volunteered to try again in a bucket-type elevator.

They started, only to find that sections of the shaft had been damaged by the drum and loose steelwork stuck out. So they moved the bucket from side to side to keep going. Eventually they reached the rope — tangled and knotted — and forced their way past it.

Water spouted from the sides and soaked them. Nine gruelling hours after leaving the surface the five in the bucket reached the trapped men to find all of them unharmened.

Now each of the five rescuers has received an inscribed gold watch, an anonymous tie, a certificate for bravery, a cheque for R250 and a framed photograph of the presentation for their brave action.

Mr D A Etheredge, president of the men with their awards at a special ceremony in their honour and said, "While we have men of the calibre of these five we have nothing to fear."
Two dead, 11 injured in mine blast

West Rand Bureau

Two men died and 11 were seriously injured in a methane gas explosion which shook the Elan¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬‐
A SPOKESMAN for the Elanderand Gold Mine near Carletonville said yesterday the 11 miners injured in a methane gas explosion at the mine on Wednesday were still in a serious condition in hospital.

Mr C H Leiberchagen, 29, is the only injured miner who has so far been named.

Two men died in the explosion, which occurred nearly 2km underground. They were Mr H Vree 41, a Carletonville shift boss and a black man.

The spokesman said the names of the blacks killed and injured could not be released because he had not had confirmation that their next-of-kin had been informed.
GOLD QUARTERLY

Cost/grade squeeze

If June quarter results announced by GFSA’s gold producers prove to be characteristic of the industry as a whole, mine managements appear to be taking an ultra-cautious view on near-term gold price movements and unit cost trends.

Several of GFSA’s mines face relatively heavy capex over the next couple of years. But, from an investor’s point of view, that is not a compelling reason for recent profit retention levels unless profits are due to be squeezed by a combination of weakening gold prices, soaring costs and falling average recovery grades.

On the first of these — gold prices — there are probably as many views as there are investors. On costs, however, there is little doubt that developments in the wake of bullion’s rise point to significant cost rises this year. Back in 1974, when gold almost doubled to a then stratospheric $200, the industry’s average unit costs rose almost 30% to R15.18, helped by wage and stores increases and additional development as previously unpayable ground was opened up.

It took five years for cost escalation to return to what are, by now, acceptable levels. With percentage increases in the upper-teens and early-twenties until 1978, it was not until 1979 that the industry cut the rate of increase to 12.6%.

Hopes of further improvement have long since disappeared. If anything, we could see average unit costs some 25% higher over the next 12 months. Last quarter, for example, West Drie, whose costs were not affected by special events or increased mill throughput, reported a unit cost increase of almost 6%. That took into account only the partial effect of higher pay for union men and officials — the increases granted to black workers in June have yet to be reflected in working costs. At the same time, price rises for stores and power are unlikely to abate.

Link this with rising development rates as the mines open up lower-grade ore zones and a 25% cost hike scenario becomes increasingly likely.

That, however, is not the end of the matter. Mines cannot quickly switch mining grades to suit gold price changes. And while they are obliged to mine to the average of their ore reserve grades, there is an inevitable lag during periods of major gold price movements before the full effects are felt. In other words, though gold recovery grades have been falling, further significant cuts are in prospect over the next few quarters.

If this appears to be an unduly pessimistic outlook, do not forget that 1973’s average unit costs were three times the 1973 level, while the industry’s average recovery grade was 8.44g/t, compared with 1973’s 11.42g/t.

Last year, gold revenues were based on an average price to the mines of R9 269/kg. During the June quarter this year, the average was some 30% higher. So unless there is a catastrophic gold price collapse, the prospects for further grade cutting are obvious.

West Drie: Management is non-committal on the possibility that West Drie will be used as the vehicle for developing “North Drie.” Though parent GFSA has completed drilling in the area and knows reef tonnages and grades underlying its mineral rights, a start-up decision probably has to await completion of drilling by the area’s other mineral rights holder, Texas Gulf. A decision on the area would, however, be speeded up if GFSA disclosed its drilling results to its potential partner in the project.

Meanwhile, West Drie has retained R25m from earnings in the past 12 months. And as I have said before, retentions of that size (they are equivalent to 176c a share) do not seem warranted by likely capex in the mine’s present lease area.

Though recovery grades have been falling steadily, they should be seen in the light of difficulties in quickly adjusting mining to the lower cut-off grades possible at current gold prices. As the programme of shifting operations into lower grade areas gathers momentum, recovery grades could be set for an even more rapid decline. The mine has considerable tonnages of low grade Carbon Leader reef and VCR which are now payable, while, in addition, Main reef ore has yet to make a significant contribution to the mining mix.

On a maintained mill throughput for the quarter of 675 000t, the mine recorded a 5.9% unit cost advance to R37.11/t. And until operations are fully established in lower grade areas, the mine could well be among the industry leaders in the cost advance stakes.
Deelkraal: The next couple of quarters could be the acut test for the mine. Development drilling has until now been confined to the upper levels of the VCR in an area of known low grade. But as development moves away from the No 1 sub-vertical shaft, the higher grade ground indicated by initial surface drilling will be tested.

Meanwhile, the mine is overcoming some of its initial ore dilution problems, partly reflected in the June quarter’s recovery grade improvement to 3.7g/t (3.4g/t). But until significant tonnages are drawn from the deeper levels, a recovery grade advance to the 10.4g/t indicated by drilling is unlikely.

The mine has acquired a prospecting option from GFSAs over 107 Ha to the north of the existing lease area. Limited sampling of the VCR in the option areas has revealed average ore grades of 9.4g/t over a width of 193 m. However, it seems unlikely that moves will be made towards mining the area for several years.

Major capex has to all intents and purposes ended, and the mine might just squeak home with a token maiden dividend this year. However, the chances of that are slim, and the main thing investors will be watching for will be an improvement in sampling grades.

East Drie: Unit costs were well contained by squeezing 15000t more through the mill than its rated 8000t quarterly capacity. Further economies from that source are, however, unlikely. The pattern of the next few quarters is likely to be cost rises in line with industry averages coupled with further recovery grade drops. Within a year, provided bullion does not fall out of bed, it will not be surprising if recovery yields are in the 12g/t range.

Capex will be relatively heavy for the next couple of years. Site preparation is in progress for the new No 5 shaft with plans to develop underground to the shaft’s location to speed eventual commissioning. Once the No 2 sub-vertical shaft is completed, the sinking will be transferred to the No 5 shaft.

R34n (62.1c a share) has been retained from the first two quarters’ distributable profits, which seems somewhat excessive despite near-term capex liabilities. Last quarter no development was done beyond the mine’s effective boundaries. In other words, no underground evaluation was made of “North Drie.”

Kloof: Because of its mining methods, the mine is relatively insensitive to price changes. As such it is one of the better income stocks no matter which gold prices move provided, that is, there are no production upsets. Last quarter’s two-week fire cut the quarter’s mill throughput by about 20% and helped boost unit costs by 15% to R45.21/t. This quarter unit costs should be lower.

In the year to end-June, R11.3m (37.2c a share) was retained from distributable earnings, partly in anticipation of a relatively heavy rate of capex. At end-June the mine had an outstanding capex balance of R66.3m, compared with a June quarter profit before tax and lease of R82.4m. As the June quarter’s revenue was based on average gold price of about $560, this year’s distributions need not be unnecessarily restrained by capital spending.

Though there is no need for the mine to exploit the Kloof reef in the Elsburg series for many years, sampling results on the horizon remain satisfactory.

Doornfontein: Higher gold prices have allowed greater flexibility in planning the mine’s future. It is now no longer necessary to accelerate development into the new southern addition to the lease area as significant tonnages of lower-grade ore have become payable in the old mine. Its life has been expanded beyond the four or five years previously expected. In addition, higher revenues have lessened capex constraints.

Gold mine costs are up...while grades are falling

The plan now is to exploit the new ground through a vertical shaft from surface, coupled with a sub-vertical shaft and one sub-incline shaft. Previously, the idea was to open the ground with two sub-inclines.

As I said last week, grades in the south are expected to approximate those of the Carbon Leader in the southern part of the old mine — recoveries of 7g/t to 8g/t. Despite the mine’s relative insensitivity to pay limit changes, the next few quarters mining of lower-grade Carbon Leader and Main reefs should cut overall recoveries from the current 8.4g/t. And though management has not finally costed the proposed shaft sinking programme, it is safe to assume that capex will exceed R100m over the next couple of years.

Last year R21.8m was retained from distributable earnings. Tax savings and the new lease formula should lessen distribution constraints in the near term, but the mine is probably four years away from its full dividend potential.

Venterspost: Higher gold prices have allowed the mine to exploit larger amounts of lower-grade ore and the mine’s previous tonnage problems appear to be well behind. At the same time, higher mill throughput resulted in lower unit costs during the June quarter, though the limits of cost containment through higher throughput have probably been reached.

Over the next couple of quarters recovery grade could drop below 4g/t. Coupling that with plans for sinking a new shaft to serve the southern part of the mine, dividends could be under restraint for a few years unless the gold price goes into orbit.

Management has been ultra-cautious in its retention policy. In the year to end-June, R6.3m was retained from a profit of R16.4m after tax and capex. That policy is likely to persist particularly if a decision is taken to extend operations into the Middleville area and a further shaft is needed for its exploitation.

Lihano: Retentions for the mine’s R200m-odd up-cycling capex programme have yet to bite fully. In the year to end-June, from taxed earnings of R95.5m, R14.1 was spent on capital projects, R15.9 was distributed and R16.3m retained. Effectively it means distributions will become increasingly gold price sensitive. Over the next few years, though management could decide the safest policy is to hold back more than may seem necessary to shareholders.

Though recovery grades have held up reasonably well over the past few quarters, a drop to 6g/t or less is probably on the cards in the near future. Meanwhile, there is probably little near-term scope for increasing mill throughput and unit cost advances are likely to continue at the
June quarter's 4.2% clip

Vlakfontein: Operations were varied and recovery grade increased last quarter with the milling of a larger tonnage from outside sources. A 10c capital repayment is scheduled for mid-August, while 20c a share has been retained from the first half's distributable profit.

UNIT TRUSTS
Blast victim named

Staff Reporter

The name of the other miner killed in a methane gas explosion at Cladran Gold Mine near Carletonville on Wednesday has been released. He was Mr. Mntuzelo Gwana, of Thabankulu, Transkei. He is survived by his wife.

A spokesman for the mine said the 11 miners who were severely burnt in the explosion were all still in a serious condition in hospital.

Mr. C H Lahuchagn, 39, who is in the Cottolene Hospital in Johannesburg, is the only injured man who has been named.

The 10 black miners injured are all in the Western Deep Levels Hospital. Their names are being withheld until their next-of-kin have been informed.
Fire at gold mine

A fire more than two km below surface was reported today from the Venterspost gold mine near Westmoreland. The Gold Fields Group said the fire was detected late last Saturday and was still burning today. The fire occurred at 2500 m below surface. There were no casualties. Production was being reduced by 85 percent because of noxious gases seeping into working areas. The mine was covered by insurance for 30 days for loss of profit and damage to equipment — Sapa.
Venters is hit by blaze

By Financial Reporter

PRODUCTION at Venterspost gold mine, on the West Wits line, will be reduced by 85% because of a fire which started on Saturday night and was partially sealed off.

"Although the area where the fire is burning comprises only 15% to 20% of the mine's production areas, production will be reduced by 85% because of fumes being released into the mine workings while the fire remains completely sealed off.

All seals are in position and leakages are being eliminated. It is expected that this work will be largely completed within the next 24 hours.

The mine is covered by insurance for 20 days for loss of profit and damage to equipment due to underground fires. The fire is at a depth of 2,300 m.
Mine fire may last 6 months

By Rob Taylor

The fire at the Venterpost Gold Mine near Westonaria could take anything between 24 hours and six months to extinguish, a spokesman for the Gold Fields group said yesterday.

A night fire patrol detected the fire — more than 2km below the surface — last Saturday. There were no casualties.

The spokesman said the area where the fire was burning — comprising between 15% and 20% of the mine's production areas — was sealed off.

He said the sealing operation was expected to be completed today, but the fire could only be extinguished once the supply of air was completely cut off.

"It could take anything from 24 hours to six months to end," he said.
Fire in mine

An underground fire has been detected 2,300 metres below surface near Venterspost's number three tertiary shaft and though the area where the fire is burning comprises 15 to 20 percent of the production area, production will be reduced by 85 percent due to noxious gas being released into the mine workings while the fire remains incompletely sealed off.

Goldfields said it is expected that the work of sealing off and containing the noxious gases will be completed within the next 24 hours. The mine is covered by insurance for 30 days for loss of profit and damage due to underground fires.
Computer beats the rockfalls
Financial Reporter

THE prevention of rockfalls and the control of the disintegration of strata are of vital importance to mining safety and productivity — particularly in the deep gold mines of the Witwatersrand and the West Wits Line.

Dr Steven L Crouch, an American authority on the use of the computer in predicting where rockfalls will occur as a result of underground pressure, will conduct a workshop on "Rock Mechanics and Related Computer Programmes" in Johannesburg on July 20.

Dr Crouch, of the University of Minnesota, has extensive knowledge of mining in South Africa. The computer programmes he has written on rock mechanics are widely used internationally, including South Africa.

The workshop on July 20 is being organised by the mining services division of Control Data and will be held at the company's offices in Mutual Gardens, Rosebank.

Dr Crouch was a mining research officer at the Chamber of Mines Research Laboratories in Johannesburg from 1968 to 1970 and was visiting lecturer in the Department of Applied Mathematics, at the University of the Witwatersrand in 1976 and 1977.
Two miners were killed in a rockfall at the Hartebeestfontein Gold Mine yesterday morning, it was announced today.

A spokesman for Anglovaal said the men, a white stoper and a black mine worker, died in a fall of hanging rock in a stope in the number seven shaft at the mine.

The stoper was Mr Ferdinandus Jacobus Swanepoel, of Clerksdorp, who leaves his wife and five children.
14 hurt in explosion

Staff Reporter

Fourteen mineworkers were injured in a gas explosion at the Elandrand gold mine near Carletonville yesterday.

They spent last night in the Western Deep Hospital under observation. Nine men who suffered minor burns are expected to be discharged today.

The others, who received more serious burns, are still in need of treatment.

The explosion occurred on a stope on the mine's 12th level, about 2,000m underground.

Mine officials believe the explosion was caused by a build-up of natural gas seeping from the rock.

Production was not affected and workers were back on the stope late yesterday.
14 miners feared dead in lift fall

Argus Correspondent

JOHANNESBURG — Nine officials fear that 14 men in a lift cage that plunged to the bottom of a shaft at the Balmoral gold mine have been killed.

The manager of the mine, Mr J. Krige, said four bodies had been recovered, and rescue teams were working to recover the rest.

Mr Krige said the cable snapped as the cage was lowered, the men to the 12th level of the mine.

All 14 men in the cage were black mineworkers.

The accident occurred at about 6 am when the first shift of 14 workers went underground.

Mr Krige said that it was possible that all the men had died and that their bones had been crushed when the cage smashed to the ground.

PROTO TEAMS

Proto teams totalling 30 mineworkers were sent underground at 7 am, and the first body was brought to the surface at 10 am.

Later three more bodies were recovered. They were taken to the mortuaries in ambulances which were on standby.

Hundreds of worried mineworkers stood around the top of the shaft waiting for their colleague to be brought to the surface.

Some helped load the bodies into the ambulances.

Mr Krige said it was the worst accident to have occurred in the group of three East Rand gold mines.
17 die in mine tragedies
Men crushed to death as cage plunges more than 200 m
17 die in Reef mine accidents

Johannesburg — Seventeen miners died in two accidents yesterday morning — one of the East Rand and one near Carletonville.

Fourteen died shortly after 6 am at the Balmoral Gold Mine — one of three in the Boshoff group of mines — when the cable which lowered the cage snapped. The mine is near Germiston.

In the other accident, three miners and five injured following a pressure burst at the Elandsrand Gold Mine about 8 am. Some slopes in the mine were also damaged but the extent of damage is not yet known.

Mr. J Krige, manager of Balmoral, said seven bodies had been recovered so far.

He said it was the worst accident at the Boshoff mines.

A spokesman for the Elandsrand Gold Mine said the pressure (or rock) burst — a minor earth tremor — had also caused several miners to be treated for shock after they had lost three of their colleagues.

Two levels — 1920 and 1958 — had been affected but the extent of damage would only be known later.

No names were released yesterday — Sapa.
Safety precautions are rigorous...yet...
Miners
plunge
to their
death

By SUE DENNY

A PACKED mine cage plunged down a Baldmoral Gold Mine shaft near Germiston yesterday after its cable snapped, killing the bottom at 200km/h and killing the 14 miners on board.

And at the Eldorado gold mine near Carletonville four miners were killed and 31 injured in a rockfall sparked off by an earth tremor.

The cage at the Baldmoral gold mine was carrying 14 miners underground to work at 6am when the 23mm thick cable snapped at a depth of 600m.

In 4½ seconds the cage plunged 200m hitting the bottom of the shaft "with the impact of a high-speed car crash."" The cage driver alerted mine officials when he saw the snapped cable speed to the surface and came to a standstill at the top of the shaft.

Mine officials said the cable had been checked on Monday and had already caused 13 shafts underground early yesterday before the tragedy.

Yesterday's tragedy was the worst accident the Baldmoral mine has had in its 43-year history.

This is the second time in about six months that miners have died in accidents involving a mine cage — one of the less frequent in mine accidents.

In March this year 23 miners died at the Vaal Reefs Gold Mine near Klerksdorp when a 14km long cage plunged 3km to the bottom of a shaft after it broke its cable.

A Johannesburg psychiatrist said yesterday the cage at the Baldmoral Gold Mine would have been travelling at a speed of 200km/h when it hit the bottom of the shaft.

He said the fall would have taken 4½ seconds and the impact would have been like a car crash at 200km/h.

A 25-man rescue team was sent down the shaft at 7:40am to recover the bodies. Through the day the team sent the mangled bodies to the surface in the remaining cage.

Only one body could be sent at a time because the cage and winch that carries the men down has had to be advanced at an angle in the small cage.

The last body was brought to the surface at 5:30pm. Seven injured men included shots fired out of the cage 30 minutes later.

One of the miners — asked why both white and black men had been sent down to bring the bodies to the surface — said "it is not a matter of color or race, they are all just miners.

Work at the mine which employs 350 miners was stopped after the accident.

During the day about 90 miners sat and stood silently in the sun at the entrance to the shaft, waiting to carry the dead to ambulances.

When the bodies were brought to the surface, they were covered by the idea of the dead to check on their identities and then partly lifted them into the ambulances.

There was a hushed silence every time a body was brought to the surface — the only sound seemed to be the droning of ambulance siren.

Mr G. H. King, general manager of the Baldmoral Mining Group which includes the Baldmoral, Primrose and Stanlock Gold Mines, said mine doctors who were from Transvaal and Matabeleland, would be flown to the scene.

This is the most serious accident since the mine opened 43 years ago.

I have been general manager for 15 years and am horrified by this disaster.

The mine has one shaft and its cages are tested by the Department every six months.

The last test was done three weeks ago and our maintenance staff do checked every Monday. So the last time the cable was checked was two days ago.

Mr King said that the mine was not yet told that the Western Cape Police were not sure if the bodies were taken from the mine.

A Cape Town policeman said 10 were admitted for treatment and their condition was reported to be satisfactory.

The names of the dead have been withheld until their next-of-kin have been notified.

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Survivors say: We'll go down again — See Page 2

Graphic: GAIL IRWIN
A rescue team worked without rest to bring the bodies of the dead miners to the surface after yesterday's accident.
Sad and dejected faces of colleagues waiting for their friends to be brought up the surface at the Germiston mine disaster. See story on Page 1.
SEVENTEEN miners were killed in two separate accidents yesterday.
Fourteen men were killed in Balmoral mine, Germiston when a lift cage plunged to the bottom of a 700 m shaft.

Three more miners were killed and five injured at the Elandsrand Gold Mine, near Carletonville.

The Balmoral tragedy happened at 6 am when the rope holding the cage snapped and the cage, carrying 14 shift workers plunged from about 200 m. The cage was lowering the men to the mine's 10th level, according to Mr J G Krige, general manager at Balmoral.

The cause of the other accident, at Elandsrand, appeared to be a localized movement of rock, an Anglo American spokesman said.

At Balmoral hundreds of sad-looking miners stood worried around the headgear waiting for their colleagues to be brought to the surface.

By LEN KALONE

One by one the bodies were brought up and loaded into ambulances. The first body was brought to the surface at 10 am and the last at 2.30 pm. Ambulances were on standby to rush the bodies to the mortuary.

Mr Krige said it was the worst accident to have happened at this group of three East Rand mines.

An investigation would be launched, Mr Krige said.

The rope that caused the tragedy was checked every Monday by mine authorities and every six months by government inspectors. The government inspection had been carried out three weeks ago.

The leader of the 24-man rescue team — six whites and 18 blacks — said they had no difficulty getting the bodies out.

"There is not much damage underground," he said.

Production of Balmoral has been halted.
10 miners trapped after pressure burst

Ten miners are trapped nearly 3 km underground after a pressure burst at ERPM in the Boksburg-Germiston area. A statement by Rand Mines says the burst occurred 2,700 m below the surface at 11 am yesterday.

Eleven black miners were slightly injured in the burst.

Rescue operations began immediately and will continue around the clock until all the missing miners have been accounted for, the statement added.

A spokesman for the mine said today: "Three slope tunnels were affected, two of which have already been cleared. We are now clearing the third tunnel."

He said that judging from the state of the area, rescue operations were likely to be protracted.
Hope for 10 trapped miners

Tribune Correspondent

RESCUERS workers at Rand Mines are still "hopeful" that the ten miners, trapped underground since Friday, will be brought out alive.

The head of rescue services at the south-west shaft, Dan Jordaan, said rescue teams had worked around the clock since lunchtime on Friday, when a pressure burst trapped the miners behind a wall of fallen rock.

No contact had been made with the trapped miners by late yesterday. Mr. Jordaan said they would keep working until they reached the men — dead or alive.

The miners are trapped some three kilometres underground in the 66 east long wall.
Ten men trapped in mine after horror

[Text continues...]
The names of the 14 miners who were killed at the Balmoral Gold Mine in Germiston last Wednesday, when a lift cage plunged to the bottom of a 700 m shaft were released this week.

Ten of the victims were from Mozambique. They were: Lorenzo Obul, Vernando Mochanga, Gabriela Sambo, Josi Chivavele, Xavier Chulenewe, Eneito Manga, Catini Manhise, Vrenaceco Chambal, Janne Chamba and Lazaar Ndhlovu.

The other victims were: Peter Nqatsi, Koyo Magwevu and Elobi Mcabayi, all from Transkei, and Piet Nokiri from Gryansi, Venda.

A spokesman at the Balmoral Gold Mine said this week that all the relatives of the dead men had been contacted.

The tragedy at the mine occurred at 6 am when a cage was carrying 14 shift workers to the mine's 19th level. The cable holding the cage snapped and the cage plunged to the bottom of the shaft.

The cable that caused the tragedy was checked every Monday by mine authorities.
Time runs out for trapped miners as rescuers battle on

By Dean Delport

Brick dust, dust in the sky, the orange headgear at ERA's South-Western mine keeps busy transporting 3400 miners a day. It gives no hint of the desperate human drama being played out 2700 metres below ground.

There, rescue workers are battling their way through a narrow tunnel blocked by many tons of fallen rock towards six miners trapped since 11 am last Friday.

The explosion of rock caused by a pressure burst has killed at least four miners, whose bodies have been found and brought out. There is no indication whether the other six are alive or dead.

But until they know, the rescue teams keep up their round-the-clock struggle in shifts, using their hands to move the rubble.

"They have advanced 16 metres in three days and they have another 20 to go," a mine spokesman said today.

Once the rocks have been cleared from the immediate working area it is scraped away mechanically.

Rescue teams, normal production workers on the mine, are working in six-hour shifts.

Rescuers travel 1510 metres down the South-Western shaft, then 300 metres to a sub-vertical shaft that takes them another 944 metres underground.

Thereafter they travel 1.8km by train to an incline shaft which takes them a final 302 metres to the area of the accident.

The entire journey from the surface to the rockfall takes almost an hour.

The men they are trying to rescue have been trapped for over three days in a 20 metre area. The four dead and six trapped miners are understood to come from Mozambique, Malawi, Transkei and South Africa.
Nine feared dead after mine disaster

This miner has been brought in the rescue after the discovery of the East Rand Proprietary Mine, where

also stuck miners are still entombed under piles of coal and rubble.

A pressure burst occurred at the mine, in the Rockhampton section, on Friday, the third mine disaster in the mine in only a month.

Nine miners are still trapped, and are feared to be dead. A special rescue team is working round the clock to recover the bodies.

The pressure burst occurred 2,500 m below the surface in the 65 East Longwall at 11 am on Friday, trapping the ten miners. Rescue teams went into action at once, but only recovered the first body yesterday after nearly 48 hours.

Although the trapped miners are now feared dead, an official said: "We never give up hope. There is a lot of rubble down there. Rescue teams have to clear it before reaching the men."

During August this year, two miners were killed following a similar pressure burst.

And Friday's incident at the mine is the second tragedy to hit East Rand Mines in a month. At the beginning of the month, 15 miners were killed in the Deloroi mine in formation when a fan cage plunged to the bottom of a 90m shaft.

Yesterday there were no signs of death at the South West shaft where the mine is broker. Life was back to normal at the entrance of the compound. There were no signs of the recent tragedy.

Said Mr. David Robson from Lenah: "Mine tragedies are so frequent that we are used to this sort of thing. In fact, I was on the 60th level when the accident occurred on Friday. I heard a thunders sound and there was a massive shingle. They told us people were trapped on the 60th level, but we continued working."

A mine official told work on the 60th level had to be stopped when the accident occurred. The working areas affected were those off the C incline shaft, which is served by the south west inclined and the south west underground shaft.
Hope dwindling for 7 trapped ERPM miners

By MARIA TUT

RESCUE workers were still digging away at tons of rock and rubble last night to save seven miners who have been trapped 275m underground for 38 hours at the East Rand Proprietary Mine near Boksburg.

But a mine spokesman said yesterday that hope of finding the men alive was dwindling.

In 38 hours of gruelling digging, rescue teams had only managed to advance 1.5m into the fallen rock trapping the men.

Rescue workers can only use their hands to remove the rubble because blasting devices would endanger the lives of the trapped men.

By yesterday rescue workers had recovered the bodies of three miners who were killed in the rockfall the night before.

The miners were trapped in an area of about 27m around a collapsed section of a 65th level after a pressure burst at 10.45am on Friday caused a rockfall at the mine's 65th East Longwall.

Eleven miners were injured in the fall.

Four were taken to the ERPM's temporary first-aid centre, only one of whom was still in a critical condition yesterday. His condition was described as satisfactory.

The body of one trapped miner was recovered about 11am yesterday. Two others were found side by side by 2pm yesterday.

The mine's spokesman, Mr. Greg Kukard said rescue workers were working around the clock to rescue the other seven men but they were working under very bad conditions and tons of rock and rubble had to be moved to get to the area where the miners are trapped.

Mr. Daniel Jardam, manager of the Western Section of the mine went underground on Friday afternoon to assess the situation.

He said conditions were very bad and although they never gave up hope, the time went by and the people are crushed.

"We have been working around the clock and will keep on looking until we find them. Although we have not heard any signs of life, we never say that people are dead until we find them."
Rescuers dig for 6 miners

BOKSBURG — Rescue workers were still digging away at tons of rock and rubble last night to save six miners who have been trapped 276 feet underground for 33 hours at the East Rand Proprietary Mine near here.

But a mine spokesman said yesterday that hope of finding the men alive was dwindling.

In 33 hours of grueling digging, rescue teams had only managed to advance 10 feet into the fallen rock that trapped the men.

Rescue workers can only use their hands to remove the rubble because blasting devices cannot be used as they would endanger the lives of those trapped in.

The miners were trapped in an area of about 276 feet in a collapsed section of the 1,900-foot level after a pressure burst at 11.45 a.m. on Friday caused a rock fall at the mine's 2,500-foot level.

Five miners were injured in the fall, only one of whom is still in hospital. His condition was described as "critical."

The body of one miner was recovered at 3 a.m. yesterday. Two others were found side by side at 4 p.m. and another at 8 p.m.

[Picture — page 19]
Body of 5th miner found

By Deen Delport

The death toll at ERPM has risen to five after rescue workers found the body of another miner this morning. Little hope is now held out that five miners, still missing, are alive.

"Considering the conditions the rescue teams have encountered in their four-day search for the men, they think it highly doubtful that they could still be alive," a mine spokesman said this morning.

"The teams made good progress during the night, clearing another 10 m and now have 10 m to go," he said.

Depending on the conditions at the rockface the team might find the missing miners today.

They have been trapped in a 27 m area, 2.700 m below ground in the southwestern corner of the mine for the past four days after a pressure burst caused a rockfall last Friday.

Teams of miners working around the clock recovered the bodies of four miners on Sunday.
Death the second will not
be the end of man. He will
live on in the memory of
the people. His life will
continue to be remembered
by those who knew him.

Do not be afraid of death.
It is a natural part of life.
Living a full life is the key.

Remember that death is
not just the end, but a
comeback. It is a way to
live on in a different form.

Grave dead mine body found
The bodies of two more miners, trapped 2700 m underground at ERPM since a rockfall on Friday, were found and brought to the surface this morning by rescue workers.

This brings the death toll in the accident to seven, with three miners still missing.

A mine spokesman said the bodies of the two latest victims were found at 11:00 am and brought to the surface an hour later. He said the rescue workers had less than 10 m to go before reaching the end of the stope.

The chances of the three missing men being alive were regarded as minimal, he added.
Germiston disaster: all bodies now found

By MIKHAYLE EROI

ALL the bodies of the miners entombed at the EMPM near Germiston the East Rand were brought to the surface after the disaster at the mine last Friday.

A spokesman for the mines said yesterday that the last body was brought to surface at 12 noon yesterday.

Eleven miners were slightly injured and 10 others trapped almost 3 km down after a pressure burst at the mine.

The pressure burst occurred 2700 metres below at 11 am on Friday, trapping the 10 men.

The first body was brought to the surface at 3 am on Sunday after nearly 48 hours by the rescue team.

The 30 men rescued team worked round the clock to recover the bodies found the last three days.

The rescue team had to clear about 33 metres of piled up rock and rubble with their own hands to reach the 10 trapped men. The whole process took the rescue team 7 days.

The spokesman further said that the names of the ten miners will only be released to the press after their relatives have been contacted.

The Friday incident at the East Rand Property Mines (ERP) is the second tragedy to hit East Rand Mines in a matter of two weeks as the beginning of the month 14 men were killed at the Balmoral Mine in Germiston.
JOHANNESBURG—Rescue workers yesterday recovered the last of the bodies of ten miners who died in a rockfall at the East Rand Proprietary Mines last week.

A spokesman for EPM said the last three bodies had been found yesterday morning.

Rescue teams at the mine dug through tons of rubble around the clock after a pressure-burst caused a rockfall 2.7 km underground last Friday morning, trapping ten miners in an area of 27 square meters of collapsed rock.

The rockfall was the worst in the mine's 80-year history. — SAPA
Five stars for mine

JOHANNESBURG—Randfontein Estates Gold Mine has become the fourth gold mine in the world to be awarded a five-star rating in terms of the International Mine Safety Rating scheme, the Chamber of Mines announced yesterday.

Since the scheme, the "branch" of an American loss control expert, was launched in mid-1978, South African gold mines have led the way.

In 1979, two South African gold mines—Western Areas, a gold mine and President Brand gold mine—became the first in the world to receive the top rating: "Outstanding". Randfontein Estates Gold Mine (Safi) today becomes the fourth to be awarded the highest grade rating.

Such an award, mine health director, general manager, and mine (safefontein Estates) No. 1. Other mines in the world have achieved a "five star" rating.

NM 2/10 80
Mine fire is still burning

Proto teams are working non-stop to extinguish a fire in the south shaft of the Western Areas gold mine.

Although a number of packs are still burning in a stope on 93 level, 250m beneath the surface, a mine spokesman said the fire, which started on Thursday, "would appear to be contained."
Mine blaze still raging

"Staff Reporter"

The fire which broke out at the Western Areas Gold Mine last week is still raging and prototype teams are working round the clock to extinguish it.

A spokesman for the mine said it was not known how the fire started, nor how long it would be before it was brought under control.

The fire, was raging in the south shaft. Although the area has been sealed off, production would be maintained because labour units had been transferred to other parts of the mine.

"The fire appears to be contained and there have been no injuries or casualties," the spokesman said yesterday.

A number of packs propping up the hanging face were still burning in a stope on 83 level, which is 230m beneath the surface, but there was no danger of the fire spreading to the other levels of the mine.

Fire-fighting teams were being used to combat the blaze, the spokesman said.
Names of ten mine victims are released

By Mazikayise Edom

THE names of the 10 miners who were killed three weeks ago at the East Rand Proprietary Mines (ERPM) after a pressure burst, had occurred, were released yesterday.

They are: Mr Gabriel Malungane, Mr Captain James, Mr Danger Jolema, all timbering assistants from Malawi and Mr Matthew Bhamu, a driller from Swaziland.

Others are: Mr George Haston, from Malawi; Mr Nkosengam Fischele from Transkei; Mr Moce Cavele from Chiputo, all team leaders; Mr Ngupile Mqutlum, from Transkei; Mr Isaac Chikotosi from Gokwe, all machine operators; and Mr Negiyaya Chabasamninga, lasher from Malawi.

A spokesman for Group Editors said yesterday that the relatives of the 10 miners have been contacted.

Eleven miners were slightly injured and 10 others trapped some 3 km after the severe pressure burst at the mine.

The 10 bodies were brought to the surface after a seven day search by a 30-man rescue team, which worked round the clock and had to clear 55 metres of rock and rubble. The pressure belts occurred 2700 metres below the surface in the 66 East longwall, trapping the 10 men.

The incident at ERPM is the second tragedy in the East Rand in a matter of two weeks. At the beginning of the month, 14 men were killed at the Balmoral Mine in Germiston when a lift cage plunged to the bottom of a 700 metre shaft.
Mine is still blazing

Staff Reporter

The underground fire at the Western Areas Gold Mine continued to burn for the seventh consecutive day yesterday.

But a spokesman for the mine said the fire was under control in a sealed-off area 2,300m underground on the third level.

He said the cause of the fire was not known.

spread since it was discovered on Thursday in the SV2 shaft, and there appeared to be no danger of it doing so.

Firemen were now fighting the blaze with water because they found they could not get near enough to the fire when they were using foam.

The spokesman said the cause of the fire was not known.
4 miners killed in ore skip crash

Staff Reporter.

FOUR miners were killed 800 feet underground at an Oden-Goldenland gold mine yesterday morning when a runaway ore skip crashed into them, killing them instantly.

Others were injured in the accident, including a man and a woman. The injured were admitted to the hospital and one man was discharged. The injured miners are in a critical condition. Five are critically injured and two suffered minor injuries.

The identities of the victims will not be released until their next of kin have been notified.

The government has already been notified. An investigation of the accident is underway. Production at the mine was not affected.
Mining - Accidents

preceding section, nearly everybody would agree that medical need and not economic status should govern access to medical care. But in practice, as medical economists point out ad nauseam, hard choices have to be made because resources are finite. In the absence of the price mechanism, and given our limited capacity to devise institutions capable of efficient altruism, the rationing of medical care is done either by the provider (hospital or doctor) on the basis of evaluations of competing need, or by the payment of the opportunity cost of waiting for service.

Two comments are needed here. Taking waiting time first, it has to be traded off against excess capacity and would appear to be particularly sub-optimal as a zero-sum phenomenon. A cost to the buyer (patient), time is not necessarily income to the seller (doctor). It is also a function of the level of productive forces in the economy. With a labour surplus as in South Africa output foregone in waiting time may be low, although subjective cost may be high. Second, the autonomy of medical personnel in rationing care is highly constrained. They can of course influence their own numbers but the capacity of other complementary components of the delivery system is the outcome in net terms of a political process of which they are only one part. Who actually does the rationing is a question with multiple dimensions.

Lastly there is the status of health care as a "primary good". In Rawls' definition they are "things every rational man is presumed to want... [primary goods] have a use whatever a person's rational plan of life" (Rawls 1971 : 62). Examples are rights and liberties, powers and opportunities, income and wealth - "social primary goods" - in contrast to health and vigour, intelligence and imagination, the "natural primary goods". The concept of a set of basic needs that defines and measures a social minimum falls into the same category, and no doubt shares a common philosophical ancestry.

The important consequence following on from the conception as health care as a primary good satisfying a basic need is that it must then be accorded a certain ranking over other needs and other goods. How high in the social ordering and therefore how extensive and complete the dispersion of such care is to be across the base of the social pyramid is the key strategic question. It would be highly naive to assume that policy decisions can be reached at this abstract level. But it is along such lines of thinking...
Mr B WOOD asked the Minister of Statistics:

How many deaths attributable to asbestos were reported in the Republic in each of the last five years for which figures are available.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Deaths</th>
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<tbody>
<tr>
<td>1978</td>
<td>1</td>
</tr>
<tr>
<td>1979</td>
<td>2</td>
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</tbody>
</table>

Prior to 1978 data not available.

Mr P A MYBURGH asked the Minister of Agriculture and Fisheries:

(1) (a) How many loans were granted by the Department of Agricultural Credit and Land Tenure in the financial years 1978-79 and 1979-80 respectively, and (b) what was the amount of the assistance for each of these years.

(2) (a) what was the (a) outstanding capital, (b) capital in arrear and (c) interest in arrear at the end of each of these financial years.

The MINISTER OF AGRICULTURE AND FISHERIES:

(1) (a) 1978-79 1 704
          1979-80 1 351

(b) 1978-79 188 639 616
          1979-80 184 486 631

(2) (a) 1978-79 1 919 032 043
          1979-80 1 588 608 601

(b) 1978-79 17 141 755
          1979-80 10 471 028

(c) 1978-79 5 453 697
          1979-80 5 861 383
Very grim, says proto team leader after battle to free bodies at Buffelsfontein

Rockfall kills 4, traps 17 miners

By Tony Dugan

Four miners died and 17 others were trapped for several hours after a massive rockfall at the Buffelsfontein Gold Mine near Orkney yesterday.

The roof collapsed after a tremor measuring 4.5 on a Richter scale shook the area.

The tremor was the worst experienced in the area for many years, according to Mr. J. Heil.

At 10.32 am yesterday, the massive shock shook buildings temporarily cut power at the minehead and brought down hundreds of tons of rock — 2,500 metric tons — at the 16th level of Pioneer shaft.

Two were immediate trapped by the collapsing rock, and a third was trapped by the stoping rock.

Yesterday afternoon 17 miners were brought to the surface.

Ten were admitted to hospital.

Next of kin

Proto teams had to work in dangerous conditions with fears of further rockfalls as they battled to free the injured men and to dig out the dead.

It was very grim, said Mr. Arthur Barlow, leader of one of the proto teams, who were 17 hours underground.

A worker in the mine yard said the tremor seemed to shake buildings and loosened ceilings in some places.

"It scared a lot of people and I heard that one girl who was standing up against a window flying curtains, fell through it because of the severity of the tremor."
For 15 hours they fought against

the clock to reach trapped men.
Suddenly death for 12 miners
16 dead in two mine accidents

Mercury Correspondent

Johannesburg—Sixteen miners have been killed in separate accidents within 18 hours of each other at two Transvaal mines.

Twelve of the men were killed and another seriously injured yesterday morning when a runaway trailer jumped the tracks more than 1,700 m underground and crashed into them at the Winkelhaak Gold Mine in Evander, eastern Transvaal.

The other four were killed in a rockfall at the Buffelsfontein mine, near Orkney, in the western Transvaal.

At the Winkelhaak mine, one miner, whose name has not been released, sustained serious injuries and Mr. Willem Gross, of Albert Road, Evander, was treated for shock at the Evander Hospital and released.

Mr. C. N. Netcher, chief consulting engineer for Union Corporation which owns the Winkelhaak Mine, said the trailer broke away from a skip at the mine's No. 2 sub-incline shaft.

The accident occurred at 6 a.m.—just 18 hours after a rockfall at the Buffelsfontein mine had claimed the lives of four miners and injured 22 others.

The tremor which caused the rockfall—measuring 4.8 on the Richter scale, also caused a rockfall at the nearby Haartiesbeesfontein Gold Mine where two men were injured.

Mr. Netcher said the skip and trailer, which are used to transport timber and other materials underground, were being wound up the 25 degree slope by a winding engine situated at working level 1,240 m underground.

The trailer must have broken away, near the winding station. These vehicles run on tracks down the various shafts but instead of turning on to the tracks leading to the lowest operating level at a depth of 1,740 m, the trailer jumped the tracks, he said.

The trailer careened down the 1,184 m shaft, jumped the tracks and crashed through a protective barrier. The miners were crushed in the impact.

At Buffelsfontein Gold Mine, eight miners were trapped for more than 13 hours while proto teams battled to free them.

A spokesman for the mine's parent company, General Mining, said yesterday the names of the four dead miners and the 22 injured men would be released once their next of kin had been informed. All the men involved were black.
16 die in two mine accidents

JOHANNESBURG — Sixteen miners have been killed in separate accidents which occurred within 18 hours of each other at two Transvaal mines.

Twelve of the men were killed and another seriously injured yesterday morning when a runaway trailer jumped the tracks more than 1,900 metres underground and crashed into them at the Winkelhaak gold mine in Evander, Eastern Transvaal.

The other four were killed in a rockfall at the Butteleiston mine, near Orkney, in the Western Transvaal.

Mr. C. N. Netscher, chief consulting engineer for Union Corporation, which owns the Winkelhaak Mine, said the names of the dead would be released after their next of kin had been informed.

The accident occurred at 6.30 a.m., just 18 hours after a rockfall at the Butteleiston Mine claimed the lives of four miners and injured 22 others.

The tremor which caused the rockfall measured 4.8 on the Richter scale.

A spokesman for the Butteleiston Mine's parent company, General Mining, said yesterday the names of the four dead miners and the 22 injured men would be released once their next of kin had been informed.

Reporters were refused permission to speak to the injured men who were admitted to the mine hospital in Stilfontein.

An aftershock of the main tremor also caused a rockfall at the Fairview Beesfontein Gold Mine, a few kilometres away.

A spokesman for Anglo Transvaal, owners of the mine, said only two miners were injured. One man sustained cuts on his back and the other was being treated for a suspected spinal fracture. Both were in a satisfactory condition — DDC
Teams fight to control mine blaze

West Rand Bureau

Seventeen fire-fighting proto teams from the Durban Roadmines and Goldmine have been battling since early yesterday morning to control a huge underground blaze.

The fire broke out at a depth of 2,000 m in the number six shaft. The fire-fighting teams went to work immediately and by early today the fire was virtually under control.

A mine spokesman said that there was no danger of the blaze spreading any further. The cause of the fire is not yet known and the effect on production still has to be determined.
Four killed in mine accident

RUSTENBURG — Four people died and one was seriously injured in an accident at the Ivan plant, Rustenburg Platinum mine yesterday.

One of the dead men, Mr Ivan Steenbergen, was employed by a specialist engineering firm. The names of the other three, all black, are being withheld until the next of kin have been informed, a mine spokesman said.

Mr T Paddy, an operator at the plant, was seriously injured and flown to Johannesburg.

The accident reportedly took place when an ore-crusher was accidentally turned on during an inspection. — Sapa
Four die
in mine's
giant 
ore crusher

Mercury Correspondent

Johannesburg—Four people died and one was seriously injured when a giant ore-crusher they were inspecting at the Ivan Plant, Rustenburg Platinum mine, was accidentally switched on.

A spokesman for the mine said yesterday the accident happened on Tuesday.

The men had gone to the mine to inspect one of the crushers—each of which carries between 15 and 20 tons of ore.

While they were inspecting one machine which was giving trouble, it was accidentally switched on.

One of the dead men, Mr. J. van Steenbergen, was an employee of a specialist engineering firm on the Reef.

The names of the other three dead men, all black, will not be released until the next of kin have been informed, a spokesman for the mine said today.
3 killed in mine accident

Three miners were killed and three slightly injured in a mining accident on the ERFM mine at the weekend.

The 'name' of only one of the dead men, Mr Thomas Jefferson Thomas, who was an onsetter, has been released.

Details of the accident were made available to The Star this morning by Rand Mines only after several inquiries had been made.

The Star has learned that the men were killed after a welding machine being carried in a skip had fouled the timbers of the Hercules Tertiary incline shaft.

It was alleged that part of the machine had protruded from the skip and that it had overturned and crushed the three miners.
3. Basic Issues

The two major positions have inevitably had to be stated in rather over-simplified form and in a somewhat over-polarized form. Perhaps the most important thing that should be noted is the difference between the conventional viewpoint, in which they in fact economic growth. Adam (1971, 181-2) argues that rationalization produces an increasingly competitive, technical oligarchy, which is even capable of destroying the society that would be in the interests of maintaining supremacy. Conventional theory is based on the assumption that the economy is a closed system, with no external factors influencing the development of the economy. In the conventional viewpoint, the economy is seen as a self-regulating mechanism, and changes in the economy are seen as the result of internal factors, such as changes in technology, labor productivity, and changes in the distribution of resources.

According to Berry, the conventional viewpoint is based on the assumption that the economy is a closed system, with no external factors influencing the development of the economy. In the conventional viewpoint, the economy is seen as a self-regulating mechanism, and changes in the economy are seen as the result of internal factors, such as changes in technology, labor productivity, and changes in the distribution of resources.

The conventional viewpoint, however, has been criticized by some scholars, who argue that it fails to take into account the role of external factors, such as technological change, changes in the international political economy, and changes in the global economy. These external factors can have a significant impact on the development of the economy, and are often ignored in conventional analysis.

4. The "Rationalism" Thesis

The term "rationalism" is one that has come to be used to indicate a school of thought that is basically anti-scientific. The term itself is not widely used in conventional economic analysis, and it is often associated with the work of philosophers, such as Immanuel Kant. However, it is important to recognize that the development of rationalism has been influenced by a wide range of factors, including the development of science, the growth of democracy, and the development of capitalism.

Rationalism is often associated with the idea that human beings are capable of rational thought and action, and that society can be organized in a way that reflects this capacity. However, it is important to recognize that the development of rationalism has been influenced by a wide range of factors, including the development of science, the growth of democracy, and the development of capitalism.

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Own Correspondent
MARITZBURG — Ten miners were killed in a methane gas explosion in the Newcastle Platberg Colliery at Elandelaagte, about 20 km north of Ladysmith, yesterday.

It will be several days before their next of kin will have been informed so the names of the dead men have not been released.

A miner worker was killed and six others were trapped in an earth tremor at the Hartebeesfontein Gold Mine near Klerksdorp today.

The injured men were freed by mid-morning and taken to the surface. None had suffered severe injuries.

The name of the dead man will be released only after his next of kin have been informed.
10 die in Natal coal mine blast

Argus Correspondent

MARITZBURG. — Ten black mineworkers were killed in a methane gas explosion yesterday in the Newcastle-Platberg colliery at Randfontein, about 20 km north of Ladysmith.

Seven bodies were brought to the surface yesterday and three early today. It will be several days before their next-of-kin are informed and the names of the dead men released.

The Inspector of Mines has gone to the scene to conduct an enquiry.

A statement issued by the owners of the mine, Kangra Holdings, said there had been a flash ignition of methane gas. Ten black miners in the immediate vicinity of the ignition had lost their lives.

Work at the mine was back to normal and had returned to full production. No fire had followed the explosion.
Ten miners killed in Natal gas explosion

Own Correspondent
MARITZBURG. Ten miners were killed instantly when methane gas exploded in an Elandshoek mine shaft near Ladysmith.

The men, working in a new shaft on the Plattburg Colliery, died when a pocket of methane gas ignited and exploded as they were working with other miners near the face. All 10 bodies have been recovered by rescue teams.

Contradictory reports from the scene said other miners may have been injured in the blast. No official comment could be obtained from local management; however, as they refused to talk to reporters.

A spokesman for the company's head office in Johannesburg said a clash ignition of methane gas had occurred at around lunchtime on Wednesday, killing the 10 men.

He denied that some other miners had been taken to hospital after being injured in the accident.

An investigation was under way to determine the cause of the blast, he said.

An inspector from the Department of Mines visited the scene on Wednesday but has not been available for comment.

None of the dead men have been officially identified. The company expects it to be some time before the next of kin have been notified about the accident.
Groundfall kills miner

A BLACK mine worker was killed in a fall of ground at Vaul reef no. 9 ventilation shaft yesterday at about 1800. His name will be released when next of kin have been notified.

— Sapa
Rand gold miners in underground protest

Own Correspondent

JOHANNESBURG — Labour unrest broke out at the Buffelsfontein gold mine outside Stilfontein yesterday when about 600 black miners stayed underground in protest against long working hours.

Riot police with dogs were standing by at the mine last night as management representatives negotiated with the workers, who had not yet returned to the surface by 8pm.

By then, they had been underground for about 18 hours.

A spokesman for the Police Directorate of Public Relations in Potchefstroom said last night that miners working at the Orange shaft had started their shift at 3am yesterday and were due to have come off shift at 5pm.

However, the workers refused to return to the surface and management was negotiating with them underground.

Police had started to go to the mine about 7.30pm but he had not been informed of any incidents. The police contingent included riot police and dogs. About 50 policemen were at the mine and more were being sent out, he said.

A spokesman for General Mining confirmed last night that negotiations were in progress.

Management could not be reached for comment.
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PLEASE CIRCLE ITEMS REQUIRED

Seven black mineworkers died in a rockfall at the Kloof gold mine near Westonaria last night, a spokesman for the gold mine said today.

1. PI All the victims are of Basotho Names and address of the deceased are being withheld pending notification of next of kin.

2. Now suppose that over a period of ten successive years the annual "crop" amounted to outputs of 80, 60, 70, 40, 50, 80, 60, 50, 40, and 70 million bushels respectively. Calculate and tabulate the gross value of the crop in each of these years, if the demand curve scheduled above was the demand curve of each of the ten years.

3. Calculate the average annual gross value of the crop over the ten years, and the output and price which would yield this value.

4. Construct a schedule showing what price would have to be received for each of the outputs in the demand schedule in order to make the gross value of the crop in each year equal to the average annual gross value. Plot this schedule on the same paper as the demand curve. (It will be a curve of unit elasticity).

5. From the demand curve find the total amount which must be offered on the market in order to fetch the prices discovered in part (4). From these amounts make a schedule showing how much the government would have to buy or sell for each total output.

6. Draw up a schedule showing how much the government would have to buy or sell in each of the ten successive years of part (2). Would the government have to sell a total greater than the amount it would have to buy over the ten years? Does the answer mean that stabilization of the gross value of a crop is impossible?

* * * * * * *
Four miners killed in Boksburg fall

FOUR black miners were killed and 10 injured in a rock burst yesterday at the East Rand Proprietary Mines in Boksburg, a spokesman for Rand Mines said in Johannesburg.

The burst happened yesterday morning on a slope at the 76th level about 300ft below the surface.

Three of the miners were admitted to hospital with slight injuries.

The names of the dead miners would be released after their next-of-kin had been notified, the spokesman said.

Loss of production was likely to be minimal. — Sapa

THE UNINSURED costs can be the following forms:

- Death of a key person in the company
- Loss of production
- Damage to equipment
- Injury to employees
- Legal costs

The uninsured costs are incurred when the company is not insured against the event or when the insurance is not sufficient to cover all losses.

The uninsured costs can be calculated using the following formula:

Uninsured Costs = Direct Losses + Indirect Losses

Direct Losses:
- Cost of equipment repair
- Cost of lost production
- Cost of lost wages

Indirect Losses:
- Cost of employee injuries
- Cost of legal fees
- Cost of reputation damage

FirstImportantEftect

On the environment and industry, uninsured costs can have a significant impact. They can lead to:

- Decrease in profitability
- Increase in insurance premiums
- Decrease in investment
- Decrease in competitiveness

To minimize uninsured costs, companies should:

- Invest in safety measures
- Provide training to employees
- Implement emergency procedures

National Occupational Safety Association
P.O. Box 2634, Arcadia 0007

4320 NOSDATA

How It Affects Profit

The Cost of an Accident

THE BASIC OBJECTIVE of a professional manager is to ensure that the business is operating in a safe and efficient manner. This includes managing the costs associated with accidents, which can have significant financial implications. Accidents can result in:

- Loss of production
- Medical expenses
- Legal fees
- Property damage
- Reputation damage

In order to minimize the costs of accidents, managers need to:

- Implement safety measures
- Train employees on safety procedures
- Conduct regular safety inspections
- Reassess safety policies and procedures

By reducing the costs associated with accidents, managers can ensure that the business remains competitive and profitable.
Mine lift
cage hooks
in cable

THE No 1 shaft of the General Mining Group's Leslie gold mine is expected to be out of operation for more than a week after a material car jammed the shaft's lift cage 600m below the surface on Tuesday.

An ascending skip car loaded with rock became snagged in the slack rope hanging below the cage, further damaging the shaft.

According to a spokesman, nobody was injured in the accident which would cause "some production loss." However, the continued operation of the neighbourming No 1A shaft would reduce the financial loss, he said yesterday.

The Science

Subject of Building Construction.

For the second best student in the

C W von Duing

for the best student in the

S A Brick Association Prizes

III: NO AWARD

II: R Law Kerren

I: N D M Sessions

Fifth Years Respectively.

II and III in the third, Fourth in the course of building economics I;

For the best student in each of

LTA Prizes

p R Swift

Professor's Prize.

The highest marks in the subject obtaining

Supervisors' Prize

Cape Chamber of Quantity Surveyors' Prize

The Committee of the Western

P C Key

In any year of study.

For the best all-round student

Bill John Prize

(continued)
Miner killed

A BLACK miner was killed by a rockfall at Hartbeesfontein Gold Mine on Monday, a mine spokesman said yesterday.

The man was killed by a fall of hanging in a stoping in the number five shaft area.

His name will be released after his next of kin have been informed. — Sapa

W Morket

Mr. of the first year.

For the outstanding student at the end

of the year. — Sapa

C. Smart

For the best student in the

subject of building construction.

III: No Award

II: A R. Law Keen

I: N. G. Sessions

Fifth years respectively.

II and III in the third, fourth and fifth years respectively.

For the best student in each of

the courses of building economics, I, II and III.

P. A. Swift

For the highest mark in

professional practice.

Cape Chapter of Quantity Surveyors’ Prize

The Committee of the Western

P. C. Key

In any year of study.

For the best all-round student.

Bell-John Prize

(continued)
Corporation Medals
For the best student in each year.

Second Year (Brass Medal)
Miss G C Littlewort

Third Year (Silver Medal)
Miss N C Davidson

Fourth Year (Gold Medal)
P M Salmon
T J Cumming
D P Weeks
J H Rens
B F McCleland

Professor George Menzies Prize
Awarded on results of final examinations to the best male student in Land Surveying or Civil Engineering.

J H Rens

Sammy Sacks Memorial Prize
Awarded to the student with the best classwork in Engineering Drawing.

L Menegaldo

A E & C I Prize
For the first year student obtaining the highest average mark.

G L Cragg
Setback for Leslie mine

An accident at the Leslie Gold Mines' No. 1 shaft could result in some production loss, a spokesman for the General Mining Union Corporation group said in Johannesburg.

A material car moved out of the lower deck of the cage in which it was being lowered and jammed the cage about 600 m below the surface, causing a slack rope. An ascending skip loaded with rock then hooked the slack rope and caused further damage in the shaft. No one was injured.
— Sapa

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[Image of a diagram or drawing]

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[Text not legible]
Sixty-five people were taken to hospital after an outbreak of typhoid fever at the Kloof gold mine near Westonaria.

Doctors said the disease was prevented from spreading.

Goldfield's public relations officer, Mr Joe Moller, told The Star: "The outbreak started at the beginning of this month but has been brought under control and the source of infection has been removed."

Mr Moller declined to name the source of infection but said 18 of the 65 people had since been discharged from hospital.

Mining sources said the most likely source of typhoid fever would be unpurified water from the shaft which is used underground as service water.

While clean drinking water was provided at all levels on gold mines it was not unusual for workers to drink the service water because it was more easily available, they said.

Although chlorinated the service water was not sterilised and germs could live there even when underground working places.

Doctors at the mine said the disease was prevented from spreading because it was contained within the mining compounds and the hospital.
Typhoid at mine in check

Own Correspondent

JOHANNESBURG — Typhoid fever which broke out at the Kloof Gold Mine near Westonaria has been contained and the source of infection eliminated according to a Gold Fields spokesman.

Of the 83 people taken to hospital with the fever at the end of June, 18 have already been discharged as cured, a spokesman for the mine said yesterday.

A spokesman for Westonaria municipality said no typhoid cases were notified outside the mine compound and the medical director of the mine was screening all inhabitants.
Heart and back top hazards

LONDON — Heart disease and back injuries have replaced pneumoconiosis as the main health hazards of the mining industry, according to the National Coal Board’s South Wales Area Health Service.

The board’s annual report shows that pneumoconiosis has been virtually wiped out among miners below 35, and is rapidly falling in other age groups, as steps to cut dust hazards take effect.

Coronary heart disease and back injuries are now having a greater part to play in miners’ health. — Financial Times
Mine fire sealed off

AN underground fire, detected at the West Driefontein Mine near Carletonville on Friday night, has been sealed off from the rest of the mine and will be left to burn out.

A spokesman for the Gold Fields Group said in Johannesburg yesterday that there had been no casualties.

It was not possible to estimate how long the fire, burning 2,000m down the No 5 West shaft, would take to burn out.

He said workers had been allocated duties elsewhere in the mine and it was estimated that about a 10% production loss would occur for the duration of the fire. — Sapa
Mine blaze at Kinross

An underground fire was detected at Kinross Mines in the eastern Transvaal this morning.

According to a spokesman for the mine's parent company, General Mining Union Corporation, no one has been injured.

The smoke from the fire is being redirected in such a way that production will be only slightly affected.

Attempts to extinguish the fire are continuing.
A barrier choc, said to be the best support system for deep level mining in the world. They cost up to R2 000 each and are now being introduced into the industry as part of an effort to make mining safer

Science may soon tame this killer

The major killer of miners may soon be tamed. Scientists are close to being able to predict where and when rockbursts are likely to occur.

Some of the finest minds in the mining industry have been battling for years to solve the hazard which grows worse as the mines grow deeper.

Since 1910, when the mining industry began keeping meaningful records of deaths due to underground accidents, more than 7 000 miners have died from rockbursts and rock falls.

While the industry successfully reduced the death rate for other types of accidents, the decline in regard to this major killer remained almost unchanged into the 1970s at the rate of about 100 a year.

The effect on the morale of both white and black miners has made the skills shortage in the industry which depends on an overwhelming extent on its manpower, even worse.

In its 1980 report, the Chamber of Mines Research Organisation noted that “It is expected that one of the benefits of investigations into rock behaviour will be an improvement in safety standards brought about by a better understanding of unstable rock fracture and hence the control of the numbers and intensities of rockbursts.”

The prospect of an improvement in safety standards was welcomed by miners, but the question of predicting the where and when of rockbursts remained a major research target.

The breakthrough came as a result of meticulous research into rock movement hundreds, sometimes thousands, of metres below the surface.

Sensors placed down boreholes are monitoring the rock movements which are sometimes only about 100 m apart in the mining areas.

The sensors are linked to a computer and, by gathering data from hundreds of points over an area, scientists are able to make the life-saving predictions that the mining industry has waited so long for.

But the man mainly responsible for the breakthrough, Prof. Miklos Salamon, said “At this stage I cannot say more than that I am hopeful.”

“Prediction is not an exact science and I am basing my hope on the results obtained in our tests.”

“We have been right often enough in our tests for me to be able to say that our predictions appear to be meaningful.”
Mr Wolfaardt, 49, is survived by his wife Annette, two daughters, Natasha 13 and Wanie 11 and his four-year-old son, Guillame.

The family also left a wife and three children.

**Contained**

Mr Wolfaardt's sister, Mrs Johana van Niekerk, said last night the family was still in shock over his death.

She received a phone call from someone who told us "Dorre is dead," she said "I still cannot believe it."

Dorre started to work on the mine shortly after he left school.

The names of the other miners who were killed were not released.

Production at the mine was not affected.

The water apparently rushed down shafts in the mine and was contained in dams situated at the bottom levels. It will eventually be pumped out.

There was a tragedy at Vaal Reefs, the world's largest gold mine in March last year when 41 miners plummeted to their deaths in a double-decker mine cage — known as a Mary-Ann down the No 2 shaft.

**Plunge**

The cage was rung away to descend but stopped about 13m down, its cable coming on top. The obstacle suddenly gave way and the cage plunged.

The sudden jar as the slack was taken up tripped the bridle off and the cage went into a 36-second plunge nearly two kilometres into the earth.

All the occupants were killed.

An inquest four weeks later found nobody to blame for the accident. After listening to expert evidence the magistrate, Mr G J Schuerman, said the most likely cause of the lift's sudden stop was a small stone or rock.

In 1978, 41 miners were trapped and died in a blaze two kilometres underground at Vaal Reefs and in 1979 an earth tremor caused rockfalls which killed 14 more.

Vaal Reefs produces almost 10% of South Africa's gold.
Rules:

(1) An intrinsic function is referenced by name and list of actual arguments and order with the specification of the type. Note, however, that functions are variable.

(2) The intrinsic functions AMOD, I, and value of the second argument is dependent.

(3) It is not necessary to declare a function that contains a reference to an intrinsic processor.

(4) For a valid intrinsic function reference:

(a) must appear as specified in the list of actual arguments, also specified in parentheses, also specified

(b) must not appear in an EXTERNAL name in a program unit where it is already known to the symbolic name

(c) must not appear in any type declaration different from the implied type declaration of Table 8–2

(5) If a particular intrinsic function is not referenced in a program unit, its symbolic name may be used for any valid purpose in that program unit.

Examples:

(1) This series of statements reads in the six complex type elements of array VCTR, then prints the conjugate of each array element, using intrinsic functions CMPLX, REAL, and AIMAG.

```
           REAL(.1, .10), V.C.T.R.
           C.M.P.L.X.(V.C.T.R.(6))
           D.O., 2.0, K = 1.6
           A.I.M.A.G.(V.C.T.R.(K))
           W.R.T.E.(3, 3.0), V.C.T.R.
           F.O.R.M.A.T.([3, 3])
```
of funds because it involves a reduction of distributable profit. The matching source is the same as the investee's earnings from operations, while the matching source itself is the same as the investee.

Where an associated company share therein is considered a write down in the carrying value and the investor's share therein is considered a write down in the carrying value and the statement articulation:

"The amount to be added from operations ought to agree with the amount included in the profit and loss statement of the entity applying the equity method." (21).

6. ADDITIONAL DISCLOSURES.

Reference to the expanded fundamental objective of corporate reports immediately highlights that the equity method is deficient in certain respects. This inadequacy has been given recognition in the S.S.A.P. 1 and was re-affirmed in E.D. 25, which states:

"More detailed information about associated companies tangible and intangible assets and liabilities should be given if the interests of the associated company are material in the context of the investor group accounts." (22).
One advantage of this decision problem can be that there are not too many

Consider again Example possible actions - market
There is however also an "in
which can provide further
if we wish to observe $x_k$, the
initial decision then has to the R10 000 to improve our

Chamber of Mines' scientists who devised and developed a unique chilled water cooling system for gold mines in the early 1970s are now planning to pipe ice into mines to counteract the tremendous heat which occurs at the great depths reached today. The breakthrough in cooling mines pioneered by the late Dr Austin Whistle and his team at the Chamber of Mines environmental engineering laboratories now goes a step further with the ice concept, according to a Chamber statement. It says large quantities of ice may in future be piped underground from the surface of many gold mines. The resulting economic and practical benefits could prove important in deep-level mining in the future according to environmental engineers who have been working on the concept.

We can illustrate the problem with its five decision nodes in Figure 6.10. Here are all previously calculated

Fig 6.10
Accident causes a puzzle

OFFICIALS at the Vaal Reefs gold mine near Klerksdorp have yet to ascertain the reason for a valve failure which caused the deaths of five mine-workers when a high-pressure flood of water was released from an underground dam on Monday.

Six million litres of water streamed through the 64 level of the mine's number five shaft, crushing a boilermaker, a fitter and three asstanns.

The names of the three black workers from the homelands are being withheld until their next-of-kin have been informed.

The reservoir was part of a unit which provided compressed air to power underground machinery. The shaft from which the water escaped was 140 metres high and it was under very great pressure.

The last disaster at Vaal Reefs occurred in March last year when a mine cage fell down a shaft, killing 31 miners.
FIVE miners were killed and seven injured at the EP&D Gold Mine, Boksburg, after a burst of air pressure in a mine shaft at 12:10 p.m. Monday.

According to the mine's safety officer, the explosion occurred in the main crusher room and was caused by a buildup of gas. The official said that the mine's ventilation system was functioning normally and that there were no signs of any fault in the equipment. The cause of the gas buildup is under investigation.

The mine's management has expressed their deepest condolences to the families of the deceased miners and has promised full support to the injured workers. The mine has been closed for an investigation and will remain closed until the cause of the explosion is determined.
A PRESSURE burst at East Rand Proprietary Mines will cut production marginally, says a mine spokesman. The pressure burst occurred 3200 metres underground yesterday on the south-incline shaft, which is served by the south-east vertical shaft. ERPM produced 11770 kg of gold in 1981 - Reuters
Mine burst toll rises to seven

By Lynne Corstella

East Rand Bureau

The death toll in the ERPM mine accident at Boksburg yesterday has risen to seven — with one miner still missing.

Five men were killed in a pressure burst 3,200 m below the surface, a depth nearing the deepest point on the mine.

Rescue workers brought up a seriously injured man who died at 9 am today. They saved six other men who were slightly injured.

The teams worked through the night and recovered a body at 5:30 am.

SEARCH

Rescue workers are continuing the search for another missing man. At the time of the burst it was not known he was in the area.

The names of the dead will not be released until their families have been informed.

The burst occurred in the vicinity of the L sub-incline shaft, which is served by the south-east vertical shaft.

A spokesman for the mine said production affected "— Sapa
Gold mine death toll reaches eight

The bodies of two miners reported missing after a pressure burst at the ERPM gold mine at Boksburg on Thursday have been found.

In the second and third decades of the 20th century, many more writers advocated that capital be recorded as a cost in pricing decisions of proposed investments. He wrote:

"Businessmen are likely to future, as they have to make statements of account. The cost is involved in what are called the imputed interest charge. They are merely concerned with whether or not to include interest on debt capital as an element of cost of an asset.

At present in the United States, public utilities include interest on both debt and equity as a cost of plant constructed (using a "reasonable rate" on the utilities' own funds when used), whereas other companies do not recognise this imputed interest charge. They are merely concerned with whether or not to include interest on debt capital as an element of cost of an asset.

5.3 Evaluation of Proposals

The proposal of capitalising interest imputed on equity funds is essentially an economic one. Economists speak of three factors of production - natural resources, labour and capital - and associate a cost to each (rent, wages and interest). Capital here includes all capital, whether debt or equity, and therefore a cost must be incurred for
Occupational Diseases in Nurses + Work: Amendment Bill - 2nd reading

Hans 8 21-25 Sept 1981

col 4913
Miner killed in rockfall

A MINEWORKER was killed in a rockfall in the No 2 shaft of Vaal Reefs Gold Mine near Orkney yesterday, according to an Anglo American spokesman.

The spokesman said no other mineworkers were involved in the accident. The dead man's name would be released once his next-of-kin had been informed.

— Sapa
Mines set safety record

The South African mining industry set a new safety record yesterday when Bofokeng South mine became the 13th mine this year to record one million consecutive fatality-free underground shifts.

This bettered the record set in 1966 when 12 mines achieved the feat.

This is the fourth time Bofokeng South, near Rustenburg, has recorded one million consecutive fatality-free shifts, and in addition, it is one of seven mines to have recorded two million consecutive fatality-free shifts - Sapa.
Safety record set in SA mining

The South African mining industry set a new safety record this week when Bafokeng South mine became the 13th this year to record one million consecutive fatality-free underground shifts.

The previous record was set in 1988 when 10 mines achieved this feat.

This was the fourth time Bafokeng South mine, in the Rustenburg area, has recorded one million consecutive fatality-free shifts.

It has the distinction of being one of seven South African mines to have previously recorded two million consecutive fatality-free shifts. — Sapa
WEST Driefontein gold mine near Carletonville recorded a million fatality-free shifts at the weekend, making it the 12th mine in South Africa to achieve a million fatality-free shifts this year. This equals the record set in 1968. This is the seventh time West Driefontein has achieved a million consecutive fatality-free underground shifts.
Blacks' cost of living climbs 12% in Joburg

The household subsistence level (HSL) for an Indian family of six in Durban is R299.36 a month, the University of Port Elizabeth's Institute for Planning Research reported yesterday.

Including Indians for the first time in its half-yearly survey, the institute said this was done because of many demands for data about Indians in many parts of the country.

Regarding blacks, the institute said that since the previous survey, five months ago, when it was found there was an increase of less than 5% in 15 out of the 22 centres surveyed — the price had changed remarkably in that the lowest increase for the current figure was found to be 7.1% in Windhoek.

It was found that in nine centres there was an increase of 10% or more, varying from 10% in Germiston to 14.5% in Durban, 14.7% in Johannesburg and a high 14.5% in Peddie.

The average increase for 13 comparable surveyed centres over the past six months was 10.7% and 14.5% for the 12-month period.

This increase for both a six-month and a 12-month period is the highest recorded since the start of the institute's surveys in 1972.

For the eight surveyed urban centres, the HSL for black families consisting of six members was lowest in Kimberley (R217.43), Pretoria (R218.32) and R219.45 a month in East London. It was highest in Johannesburg at R242.49 a month, and Cape Town with R231.64.

Windhoek, however, remained the most expensive city where the HSL was calculated at R250.44.

A socio-economic survey had just been completed among households in Port Elizabeth's black townships.

From preliminary results, it was interesting to note that while the HSL for a six-member household was R210.46, the average actual household income was R226 a month.

It was estimated that by 1985 — provided the current rate of inflation remained the same — the average HSL for a black household in the five major urban centres of Johannesburg, Pretoria, Cape Town, Durban and Port Elizabeth could reach R300 a month.

Coloureds

Regarding coloureds, the average increase for the 10 comparable surveyed centres since the April survey was 7.7%.

The lowest percentage changes were found in Queens-town, Kimberley, Johannesburg and Port Elizabeth.

In Cape Town, Pretoria and East London the percentage increase varied between 8.1% and 8.6%, which was more or less on a par with the Consumer Price Index increase over the same period.

Of the surveyed urban centres — excluding King William's Town and Queenstown — the HSL for a five-member household ranged from R216.74 a month in East London to R237.81 in Johannesburg. Both these areas retained their respective positions as the "cheapest" and "most expensive" centres to live in. — Saps
13 mines hit millionmark

By Bob Davis

Thirteen South African mines have reached the coveted million mark in fatality-free shifts so far this year, a record for the industry.

In 1968, 12 mines achieved the million mark, but in the 70s our performance was very poor," said Mr. Guy Stokes, manager of the Chamber of Mines safety division.

Mining was taking place at deeper levels and there was no co-ordinated safety plan to adhere to.

The adoption by South African mines of the International Safety Rating System had changed the picture, however.

"We weren't getting any better at safety performance and matters were becoming worse in the 70s," Mr. Stokes said.

But in 1977 a small number of mining men went to Atlanta, Georgia in the United States to attend a seminar on industrial safety presented by Mr. Frank Bird, who fathered the International Safety Rating System.

The method centred on loss control management and Mr. Stokes said in spite of the greater depths to which the mines were going, safety standards improved in the ratio to which senior managers were trained in the required skills.

The decision to train senior management as opposed to workers at grass roots level was taken because production was seen as a management discipline.

"Loss control is a part of production and safety is an integral factor in production," Mr. Stokes said.

Managers were sceptical at first but it was soon proved that safety and productivity went hand in hand.

"The safer a mine is to work in, the more productive it becomes," Mr. Stokes said.

The method centred on the international rating system, mining functions were divided into 22 elements and a team of auditors visited participating mines each year to rate them on each of the 22 elements.

"We gave them stars to indicate the level of achievement, the highest being five stars," Mr. Stokes said.

The only mines in the world to have achieved the top level of five stars were in South Africa where seven mines had been rated at that level this year.

Mr. Bird said the 22 elements involved in safety rating even included one pertaining to safety in a miner's home and mining wives were trained in safety procedures, "because if a man or a member of his family is injured at home, it may result in a production loss."

The training given to top management had gradually filtered down to all levels of work in the mines and the result was that in terms of injuries per thousand workers, the first six months of this year had proved to be the lowest since mining began in South Africa in the late 1800s.
REPUBLIC OF SOUTH AFRICA

GOVERNMENT GAZETTE

STAATSKOERANT

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CAPE TOWN, 21 OCTOBER 1981
KAAPSTAD, 21 OKTOBER 1981

Vol. 196] [No 7845

OFFICE OF THE PRIME MINISTER

No 2194 21 October 1981

It is hereby notified that the State President has assented to the following Act which is hereby published for general information —


KANTOOR VAN DIE EERSTE MINISTER

No 2194 21 Oktober 1981

Hierby word bekend gemaak dat die Staatspresident sy goedkeuring gegee het aan die onderstaande Wet wat hierby ter algemene inligting gepubliseer word —

Miner killed in fall
27/10/97

A white workman, Mr J W F Labotske, was killed at the West Rand Consolidated Mine on Sunday when he fell down a shaft.

Mr Labotske was doing repair work to the shaft timbers at the time of the accident.
Chamber honours 2 brave miners

TWO MINEWORKERS who disregarded the dangers of fiercely burning timber and falling rocks to douse an underground fire, have received the Chamber of Mines award for bravery at a ceremony at West Driefontein Gold Mine.

In making the presentation, the Chamber's general manager, Mr D N Stuart stressed that the men, Mr Petrus Pelser and Mr Edwin Goosen, had by their "speedy and selfless action prevented what could have been a major disaster involving possible loss of life".

The incident occurred in the No 2 Shaft of West Driefontein near Carletonville.

Mr Stuart said that on March 20, Mr Goosen discovered a fire on the 18th level and immediately informed the shaft overseer, Mr Pelser, by telephone.

He then returned to the fire and tried to extinguish it. He was joined by Mr Pelser.

Reading from the citation which he presented to the men, Mr Stuart said "The strong ventilation current was causing pieces of burning timber to be torn from the hanging wall and tossed as much as five metres ahead of the fire. Pieces of hanging wall, which had been supported by cribbing, had also been falling.

Threat

"Conscious of the threat to people working in the 18/4 and 18/5 stopes, as well as to the mine itself, and disregarding the great danger to themselves, Mr Pelser and Mr Goosen ran through under the burning timber to a position ahead of the fire, where they created a fire break having prevented the further spread of the fire, they proceeded to douse it with water from the drain.

"In putting the safety of their fellow-workers and of the mine itself above their own, Mr Pelser and Mr Goosen acted in the finest traditions of the mining industry."

What the citation did not mention, said Mr Stuart, was that "these men doused the fire with their hard hats, using them to scoop up water from the drain, or that if it had not been for a warning shout from Mr Pelser, Mr Goosen might have been crushed by a huge piece of rock."

-Sapa
13 die as cage plunges 200m

THIRTEEN miners were killed and another 35 injured when a full cage at the Western Deep Levels goldmine near Carletonville plunged nearly 200 metres yesterday.

The identity of the dead men, all black migrant workers, have not yet been released.

The condition of the three unnamed white survivors admitted to the Cottestone Chamber of Mines Hospital in Johannesburg was satisfactory, a spokesman said.

Spokesmen at Western Deep Levels and J.B. Strijdom Hospital said they could not comment on the condition of the injured admitted.

The men were coming off the morning shift at 11.30 in a cage in the No. 3 service incline going to the winding machinery failed at a depth of about 2,000 metres.

The cage fell another 200 metres. Rescue workers from Western Deep’s own team brought the bodies and survivors to the surface.

Mr. Brendan Ryan, Press officer for Anglo American said there would be an investigation by both the mine and the government mining engineers into the failure of the winding mechanism.
Thirteen miners die as cage falls.

By KEN SLADE

THIRTEEN miners were killed and 35 injured at Western Deep Levels gold mine near Carletonville yesterday.

Winding machinery failed at the end of a work shift and plunged the miners to the bottom of a shaft.

The accident happened at 11.30am when the men were coming off duty at the No 3 incline shaft.

A spokesman for Anglo American Corporation, Mr Don Ryan, confirmed the miners were killed when the cage plummeted after the winding machinery failed.

Mr Ryan said although the shaft was 360m deep, the cage had only been hoisted about 160m when it plunged to the bottom.

First aid teams and workers from other shafts were rushed to the disaster area and within minutes, the wreckage was cleared.

Mr Ryan said 17 dead miners, all blacks, were brought to the surface by 6am yesterday.

Mr Ryan said some of the injured were in serious condition, but others had been only slightly hurt.

The injured were admitted to Cuthbert Hospital near Johan Nefzgau and the Sybrand van Niekerk Hospital near Carletonville.

The names of the dead will not be released until their next of kin have been informed.
16 killed in mine shaft disaster

REPORT ON THESIS SUBMITTED

TITLE: Le sens de la destitution

The problem of this type of an M.A. at a South African college is dealt with entirely as if synthesis indeed to be at all given framework. (Remarks not unaware of this difficulty is obviously intended to put the reader in a satisfactory position in the chapter of Mines Hospital at Cottesloe.)

The only way to tackle such points from the subject is done without perhaps succeeding into a whole : the thesis really composed of related (and convergent) aspects selected for analysis far enough for the essential of themes as dream, woman, (which adds such topics, dealt with more incidentally, as Gérard de Nerval's madness, his attitude to love, his style, his use of archetypal images. In this last mentioned strand of her study she has recourse to the writings of the psychologist Jung with which she is well acquainted, a knowledge which she puts to good use, drawing interesting parallels and highlighting a number of symbols with a certain degree of originality. Here and elsewhere she shows feeling for poetry and perhaps even more for the materials and the aims of poetry. The distinction which is being made here is intended to convey a certain feeling of disappointment with the focus, which is more psychological and metaphysical than strictly speaking literary, though it must be recognized at once that literature embraces many fields and that an esoteric, occultist poet like Gérard de Nerval lends himself to such a treatment.

The general impression given by the thesis is one of genuine feeling and enthusiasm accompanied by a certain naïveté and amateurishness in the

.../2
Death toll in mining accident now 16

By MAURITZ MOOLMAN

The death toll in Saturday's mining accident at the No 3 shaft of the Western Deep Levels Gold Mine near Carletonville has risen to 16.

Thirteen of the 16 miners in the cage were killed instantly as the winding machine broke and the cage plummeted 170m to the bottom of the No 3 service incline shaft.

Three more workers, all of them black, have died since Saturday night while the condition of five more in the Western Deep Levels mine hospital was described last night by a spokesman for Anglo American, as "serious."

The names of the dead will be released as soon as their next-of-kin have been informed. Three whites: the shiftboss, Mr Gerrie Groye, a stoper, Mr Kruger and a developer, Mr Joubert, are in a satisfactory condition in the Chamber of Mines hospital at Cotonsoek near Johannesburg.

The accident happened on Saturday morning at 11 45 as the miners came off shift. The cage was 170m from the bottom on its way to the top of the 333m shaft when the winding machine broke and the cage plummeted.

All the injured miners had been brought to the hospital by Saturday afternoon and by 6pm on Saturday all the bodies had been recovered, the spokesman said.

Second time

This was the second accident involving a mine cage in less than two years.

Twenty-three miners were killed in March 1980 when a double-decked cage broke loose on the No 2.44 of the Vaal Reefs Gold Mine and plummeted 2,669 meters to the bottom of the shaft. There were no survivors.

"It is difficult to say why some survived Saturday's accident and others not. Perhaps it was just a matter of luck," an Anglo American spokesman said yesterday.

He said this weekend's accident was different to that of Vaal Reefs as it occurred on an incline shaft and the winding gear broke.

A transom on the cage at Vaal Reefs broke near the top of the shaft allowing the cable to snap. The safety, back-up system failed.

He could not say whether back-up or safety systems had failed on Saturday as this was still being investigated.

"The winding machinery, however, is regularly checked and serviced," he said.
16 killed in mine accident

A TOTAL of sixteen mine workers were killed and 27 injured in an accident on Saturday at the Western Deep Levels Gold Mine near Carltonville.

A spokesman for the mine told Sapa the men were coming off shift in the number three service inclined shaft when the winding machinery failed and the cage fell out of control to the bottom of the shaft.

The shaft was at a depth of about 3500 metres when the accident occurred. The shaft is about 3700 metres deep. The cage fell 170 metres, said the spokesman.

The injured men, three of whom were white, were brought to the surface by rescue teams from Western Deep Levels and have been admitted to the Western Deep Levels hospital, the Cottesloe Hospital near Johannesburg and the Sybrand van Niekerk hospital near Carltonville.

The names of the 16 workers who were killed will be released when their next-of-kin have been informed. All the dead were blacks — Sapa
Mine deaths probe today

By Andrew Walker

A Government official will today investigate the Western Deep Levels gold mine disaster which killed 16 men and injured 32.

Five of the injured are in serious condition in the mine hospital near Carletonville, an Anglo American spokesman said today.

Thirteen of the 35 miners being hoisted to the surface of the mine's No 3 shaft were killed instantly on Saturday when the cage fell about 170 metres to the bottom of the shaft. Three more died of their injuries during the weekend.

The names of the dead and injured will be released after their next of kin have been told. The Anglo spokesman said this was taking time because many of the workers came from outlying districts.

But he named three of the injured as Mr. Kruger, a Mr. James and a Mr. Grove who are in a satisfactory condition at the Chamber of Mines Hospital at Cullinan.

The cage bringing miners to the surface fell after the winding plant failed, said the spokesman.

The cause of the tragedy "will be investigated today" by the Government's engineer.
State probes fatal mine accident

Mail Reporter

An investigation has been started by the Government mining engineer into the cause of last weekend's accident at the Western Deep Levels Gold Mine near Carletonville.

Thirteen miners died and 35 were injured on Saturday when a mine cage fell about 170m to the bottom of the shaft after, it is alleged, the winding machinery broke.

Three more miners died in the mine's hospital during the weekend.

A spokesman for the Government Inspectorate of Mines said yesterday the accident was being investigated. He said all mining accidents are investigated by the inspectorate and the outcome made public.

The condition of three injured workers was described yesterday by a spokesman for the Colteelose Chamber of Mines hospital as "fine, under the circumstances."

The shift boss, Mr Gerrit Grove, sustained neck injuries. Two others, described only as Mr Jooste and Mr Kruger, have chest and other injuries.
FIVE mine workers died in a deluge of water which burst from an underground dam at Vaal Reede mine, Boksburg, yesterday. Six million litres of water rushed down the 6th level of mine shaft where a boiler-er, a fitter and three assistants were working. A futile telephone call, an engineer had been reported, but it was not known whether he had escaped. The water escaped from a shaft 1000 feet deep and was therefore under water. The spokesmen said the incident occurred on the Vaal Reede shaft.  

FIVE workers were killed in a mine deluge yesterday. The incident occurred on the Vaal Reede shaft.  

Heath says it was unwise to hold up fuel.
MINING - Accidents

1982

JAN. - DEC.
Doctor and nurse get bravery awards

A DRAMATIC 20-hour rescue operation to save a man buried under a pile of rock after a rockfall at the Okiep copper mine in Namibian last year had a happy sequel in Johannesburg yesterday when the Chamber of Mines made bravery awards to 15 people.

DPS J Le Cloo and Sister J van der Merwe were presented with the chamber's award for outstanding bravery.

Working in dangerous and difficult conditions, they successfully amputated the leg of mine ganger Mr W Bakker in a two-hour operation underground.

Dr Le Cloo performed the amputation lying on his side and with his left hand as this was the only way he could reach Mr Bakker's leg.

Others to receive the outstanding bravery award were Mr H A Dippenaar, Mr T B Brand, Mr G Gip and Mr M Nytsel.
In summary, may we adopt the hackneyed old phrase: "Is your punishment this, that in touch with each other, and this punishment and the amount of time the prison sentences and the amount of time in the community for those who commit in a similar approach is recommended is not a crime or a crime.

A chart has been prepared of the routes traveled by the truck and the data is available for this purpose.

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A chart has been prepared of the routes traveled by the truck and the data is available for this purpose.
The inverted pyramid is a writing technique that begins with the most important information and works its way down to the least important. By giving the most important information first, the writer makes sure that the most significant details are not lost in the process of reading the document. However, writing in this manner requires extra effort from the writer to make sure that the supporting details are not overlooked. The inverted pyramid is commonly used in news writing, but it can also be applied in other types of writing where clarity and efficiency are important.
Vacationers and their "kinship circle" are urged to take precautions to avoid an acute sickness characterized by hallucinations, delusions and hallucinations.

The sickness, known as "vacationer's delusion," is a form of mental illness that can be caused by excessive alcohol consumption during long trips.

When the sickness strikes, it can be difficult to distinguish between real and imagined experiences, and patients may have difficulty communicating their symptoms to others.

A Weekend Argus Reporter"
MINEWORKER Willem Bakker will never forget the 50 tons of broken rock that fell on him underground in a Namaqua-land copper mine.

It was the display of courage of a young doctor and a nurse that saved his life.

They worked themselves to perform emergency surgery to amputate his leg in a cramped and dangerous cave, with the constant threat of loose rock crushing down on them.

It was the first time underground for 21-year-old Dr. Potgieter, who took two hours—lying on his side—to amputate the leg in the early morning of October 10 last year at the Caribouberg copper mine in the Namaqua-land town of Nababeep.

That week, the surgeons of Dr. Le Clus and Sister Johanna van der Merwe, 40, were recognised by the Chamber of Mines, which presented the pair with awards for outstanding bravery.

And 25-year-old Bakker, a mine fitter, was there to see the honoured. He is learning to walk again with his artificial leg.

Presenting the awards at a ceremony in the mine's main hall, Chamber of Mines president G. W. F. van der Beek said: "The story of their rescue is one of the most dramatic in the history of mining. Words can never truly do justice to an incident of this kind or fully describe the heroism required.

The rockfall hit the mine killed one miner-worker, Mr. P. Ooms, seriously injured another, Mr. D. J. Clee, and buried Mr. Bakker, who was partly buried after his faint cries were heard.

Dr. Le Clus, a general practitioner in the town, had to amputate the injured leg with a surgical knife, as there was too little space to use a surgical saw.

The two hours' duration followed a sleepless night for Dr. Le Clus, who had been attending to the other injured miners at the surface. Dust and small rocks fell from the roof continually, threatening another rockfall.

"I was so busy with what I had to do that I didn't have time to think of fear," he said after the awards ceremony.

Sister van der Merwe, a nurse sister in Nababeep, and the first woman to receive the award, was reluctant to discuss her part in the rescue.

But, says Mr. van der Beek, she volunteered to assist Dr. Le Clus. "The whole team was very brave. Our work is more important than our fear," he said.

After the underground operation, Mr. Bakker was carried to the surface and Dr. Le Clus finished the surgery at the mine hospital.

Although Mr. Bill Dutton, personnel manager of the mine company, hoped Mr. Bakker would be able to return to his underground job, Dr. Le Clus thought it was unlikely. Mr. Bakker has been kept on by the company.

Neither Dr. Le Clus nor Sister van der Merwe expected the award, which they said came as "a surprise."
Mines honour brave doctor and nurse

A nursing sister and a doctor who amputated the leg of a trapped miner underground were among 12 people who received awards for bravery from the Chamber of Mines this week.

Sister J C van der Merwe is the first woman to receive an award for bravery connected with mining in South Africa.

Neither she nor Dr P le Clus had been down a mine before last October 15, when they amputated a ganger’s leg so that he could be freed from under a pile of rocks.

In the citation, Mr L W P van den Bosch, president of the Chamber of Mines, said that a section of the roof at 2384 level of the Carol Reiger copper mine at Okiep collapsed on the ganger and two workmen.

Mr T Qoboka was killed instantly and Mr D M Cloete injured seriously.

Ganger Mr Willem Bakker was trapped under a pile of rock.

It took seven hours to tunnel through the rock to reach Mr Bakker, who had been given a pain-killing injection, but one of his legs could not be freed.

Dr le Clus and Sister van der Merwe went down the mine to amputate the leg.

There was another rockfall during the rescue, and the danger of the rescuers also being trapped.

Mr van den Bosch said the doctor performed the operation lying on his side in a tunnel while the sister passed instruments from the entrance.

Other rescue workers also received awards.

They were Messrs H A Dippenaar, T S Brand, G Goosen, M Nyeleti, M Dabulile, M J Dippenaar, J S Coetzee, S Shamba, Z Fumda and W Machingwana.

Mr van den Bosch said the rescue was one of the most stirring stories in mining history.
Dr Piet Le Clus (above) and sister Johanna van der Merwe at this week's ceremony.

AWARD
FOR
HEROES

Tribune Reporter

MINEWORKER Willem Bakker will never forget the day tons of broken rock buried him underground in a Namaqualand copper mine.

It was the day the courage of a young doctor and a nursing sister saved his life.

They rushed themselves to perform emergency surgery to amputate his leg in a compact and dangerous cavern, with the constant threat of loose rock crumbling down on them.

It was the first time underground for 31-year-old Dr Piet Le Clus, who took two hours—lying on his side—to amputate the leg in the early morning of October 18 last year at the Cardium copper mine in the Namaqualand town of Naboro.

This week the courage of Dr Le Clus and Sister Johanna van der Merwe, 40, was recognised by the Chamber of Mines, which presented the pair with awards for outstanding bravery.

And 38-year-old Mr Bakker, a mine gang, was there to see them honoured. He is learning to walk again with an artificial leg.

Presenting the awards at a ceremony in the small mining town, Chamber of Mines president L W P van den Bosch said: "The story of this rescue is one of the most stirring in the history of mining. Words can never really do justice to an incident of this kind or fully describe the horror and danger involved."

The rockfall at the mine killed one mine-worker, Mr T Koboka, seriously injured another, Mr D M Cloete, and buried Mr Bakker, who was partly unburied after his feet were heard.

Dr Le Clus, a general practitioner in the town, had to anaesthetise Mr Bakker before amputating the trapped leg with a surgical knife, as there was too little space to use a surgical saw.

The three-hour operation followed a sleepless night for Dr Le Clus, who had been attending to the other injured miners at the surface. Dust and small rocks fell from the roof continually, threatening another rockfall.

"I was so busy with what I had to do that I didn't have time to feel any fear," he said after the awards ceremony.

Sister van der Merwe, a theatre sister in Nabarro and the first woman to receive the award, was reluctant to discuss her part in the rescue.

But, says Mr van den Bosch, she volunteered to assist Dr Le Clus. "The whole team was very brave. Our work was more important than our feeling," she said this week.

After the underground operation, Mr Bakker was carried to the surface. Dr Le Clus finished the surgery at the mine hospital.

Although Mr Bill Dutton, personnel manager of the mine company, hoped Mr Bakker would be able to return to his underground job, Dr Le Clus thought it unlikely. Mr Bakker has been kept on full pay by the company.

"Neither Dr Le Clus nor Sister van der Merwe expected the awards which, they said, came as a great surprise."

But both had hoped useful information about a young man, a nurse and, to Carry the Deputy Manager, Elizabeth.
Hammer

"There was not even enough room to use a saw. To make matters worse, the leg could not be moved and I had to cut through the knee.

"After initially using a scalpel, I eventually had to resort to the surgical hammer and chisel to get through the bones.

"I managed to turn my body in such a way that I could hold the chisel with the right hand and the hammer with the other.

"With sand and small rocks still falling down at times, there was no question of sterility."

The operation lasted two hours.

After the amputation, Mr Bakker was taken to the O"Keeffe Copper Mine Hospital at Nahabeep where Dr Le Clus tied up his emergency surgery.

"A" rock pinned down his right leg, but also provided just enough space for Mr Bakker to escape being crushed.

Mr Bakker never lost consciousness.

When the mine overseer, Mr Henne Dippenaar, arrived, Mr Bakker assured him he was in no pain.

But it took more than 12 hours to make a hole big enough to reach him.

According to Mr Dippenaar there was always the danger that more rockfalls would occur, crushing survivors and rescuers.

"We had to be very careful. Mine props first had to be placed into position to stabilise the roof, but even that was no guarantee against further rockfalls," Mr Dippenaar said.

Only solution

"We could not use dynamite to reach Mr Bakker."

"With the aid of drills and a rock splitter we managed to make a hole three metres long, one metre high and half a metre wide."

"There was no way we could remove the rock trapping Mr Bakker as the rest of the roof would collapse."

"The only solution was to amputate the trapped leg to free the miner," said Mr Dippenaar.

For Dr Le Clus it meant going underground for the first time in his life.

"I asked Sister van der Merwe to prepare the amputation kit and the necessary drugs.

"She offered to come down with me, but I thought it was too dangerous for her.

"But she was adamant. "The mine management didn't like the idea either."

"I was not really worried about going underground — I was more concerned over whether I had all the necessary instruments for the operation.

"Looking back, I am very glad that Sister van der Merwe accompanied me. I doubt whether I could have done the amputation without her assistance."

After setting up the lights and crawling into the hole, Dr Le Clus found a very calm patient.

Mr Bakker had accepted the fact that he would lose part of his leg.

"Mr Bakker cut off his own trousers with a knife and helped me tremendously in preparing for the operation."

"When everything was ready, I gave him two anaesthetic injections."

There was so little space to work in that I had to be on my right side. I also had to remove my hard hat.
Write the report of your investigation and make recommendations.

5.3.2 Chemical Engineering

Working as a chemical engineer for the Cape Town City Council, you have been asked to investigate complaints received from the public about the proposed new nuclear power station/fertiliser plant/oil refinery to be erected soon. These complaints include:

(a) Power Station

- Claims by conservationists that the power station will cause thermal pollution and that once this starts, it is difficult to control.

- Claims that there is the danger of explosions, and that the site of the proposed power station is too close to large residential suburbs.

- Claims that the waste products would not only be difficult to dispose of, but are also hazardous to health.

(b) Fertiliser Plant

- Claims by conservationists that the dust pollution may be difficult to control.

- Claims that the nitric and sulphuric acid fumes will attack and erode metal such as window frames and cars.

- Claim by the health representatives that these fumes will cause an increase in the incidence of bronchial problems in children.
Ground fall kills miners

Mail Reporter

TWO miners were killed and four injured on Saturday after a fall of ground in the south shaft of the Westonaria Gold Mine at Elsburg.

One miner was killed instantly and the other was found dead by rescue workers. The accident occurred 1,600m underground.

Saps reports a rescue team leader was injured during recovery operations, but none of the injured is in a critical condition.

The names of the dead have not been released.
Miners killed

Johannesburg — Two miners were killed and 14 injured in a rock burst in Harmony Number Two shaft at the Harmony gold mine near Virginia in the Orange Free State on Tuesday (2/3).

None of the injured men was badly hurt.

City Times 4/3/92
AT LEAST seven miners are believed dead and seven thousand were trapped deep underground for many hours in the Free State Geduld gold mine, near Welkom, yesterday when an earthquake measuring five on the Richter scale hit the area.

The tremor caused shafts one and four to subside and rescue workers devised a plan to transport the trapped miners, underground, to neighbouring shafts two and three, from which they were brought to the surface.

Recovery of the living, dead and injured proved to be a massive task, with the earthquake striking at 130 p.m and mine captain Viljoen telling the Mercury eight hours later that 'not everyone has been brought up yet'.

Although Free State Geduld's general manager, Mr Opperman, said earlier in the evening that as far as he knew no loss of life had been suffered, Mr Viljoen told the Mercury from his post in Shaft Three at 10 p.m that 'at least seven bodies have been recovered, but I must emphasise that that figure's an approximation at this time'.

**Impossible**

Mr Viljoen said it was 'impossible' to give even a rough estimate of the number of injured.

When asked if he could give a first-hand account of the tremor and its aftermath Mr Viljoen said he didn't have the time 'because there's still too much going on here, although I must tell you there's no state of emergency here'.

Free State Geduld's engineering manager, Mr Ivan Pannen, was still involved in the recovery programme when the Mercury telephoned his home last night but his wife said that when the quake hit no one thought it was going to have the effect it did.

'We were sitting having lunch and all of us jumped from our chairs. I looked at my watch and noticed it was 13.30 exactly. My first thought was that the tremor wasn't as bad as the one we had in December 1976.'
Man dies in mine rockfall

Johannesburg — One miner was killed and 29 inured in a localised rockfall caused by an earth tremor that shook the Free State Geduld mine near Welkom.

An Anglo American spokesman said about 2,000 miners were involved.

He said the tremor damaged the hoisting mechanism at Number One shaft and part of the shaft lining of Number Four shaft.

As a result, underground workers could not be hoisted to the surface in these shafts and had to make their way to Number Two shaft and Number Three shafts, which were undamaged.

Mine officials descended the shafts to ensure that all workers were able to leave the underground workings safely, the spokesman added. — Sapa
8 killed, 7 hurt in mine shaft sinking

Argus Correspondent

JOHANNESBURG — Eight men were killed and seven injured, three seriously, in an accident at Amcoal’s New Denmark Colliery near Standerton shortly after 1 pm yesterday.

The accident occurred during shaft sinking operations on the central mine service shaft being carried out by Shaft Sinkers Ltd.

The cause of the accident is the subject of an inquiry by the Government mining engineers department. However, initial reports are that steel shuttering and concrete lining collapsed on to the workers, from a point about eight metres above the shaft bottom which is 170 metres deep.
Miner dies during rockfall

JOHANNESBURG — One minerworker was killed and 20 injured in a localised rockfall caused by an earth tremor which shook the Free State Geelid mine near Welkom at 1200pm yesterday.

About 2000 miners were trapped underground, for several hours. Most had been brought to the surface by 1130pm.

An Anglo American spokesman said last night that a tremor damaged the hoisting mechanism at the No 1 shaft and part of the shaft lining of No 4 shaft. As a result, underground workers could not be hoisted to the surface in these shafts and had to make their way underground to the undamaged No 2 and No 3 shafts.

According to eyewitnesses this proved to be a massive task.

Mine officials descended the shafts to ensure all workers were able to leave the underground workings safely. The spokesman added — Own Correspondent-Sapa
Miner dies. 3 missing.

JOHANNESBURG

Three miners are missing and one has died after an earth tremor shook the Free State Geduld mine at Welkom on Tuesday, trapping 7,000 men underground.

A dramatic rescue operation was mounted to lead them to safety underground through pitch-black, dust-filled tunnels after two lift shafts were put out of action.

Mr Jack Passca Ncube, 31, a senior miner from KwaZulu, was killed by falling debris just after the tremor occurred at 127 pm.

Yesterday, 20 injured miners were still in the Oppenheimer mine hospital in Welkom.
Last 12 Soviet miners safe

About 2,000 trapped gold miners at Free State Geduld Mine near Welkom were rescued after an earthquake and rockfall last night.

The last 40 miners trapped in the accident, which claimed the life of one and injured 20 people, came to the surface in the early hours of the morning.

An Anglo-American spokesman said that repairs were being made to number 1 and 4 shafts which were damaged by the earthquake.

The trapped miners — 4,000 of them at one stage — had to walk up to 5 km underground through connecting tunnels and underground workings to escape via two undamaged shafts.
EIGHT men were killed and seven injured when they were crushed by falling steel and concrete while working underground at a coal mine near Stanterton late on Tuesday night.

The collapse occurred during shaft sinking operations at Amoco's New Denmark Colliery while the men were working on the central mine shaft.

The accident, according to a spokesman for the mine, occurred when steel shuttering and concrete lining collapsed onto the workers from a point about eight metres above the shaft bottom at a depth of about 170m.

All the dead and injured were employed by Shaft Slakers Pty, who are working on contract to the mine.

Mr Rob Hudson, a spokesman for the mine, said in Johannesburg yesterday the cause of the accident was being investigated by the Government Mining Engineers Department.

He said the names of the dead and injured would be released as soon as their next of kin had been notified.
Three black miners missing at Free State Geduld mine after several earth tremors were found dead early today.

The men, who were last seen alive after the first tremor on Tuesday morning, had apparently sought refuge in a steep ore pass tunnel where a second tremor caused a rock-fall which killed them.

Their bodies will be brought to the surface later today by rescuers who will have to hike through many kilometres of mine tunnels.
Eight miners killed

EIGHT black miners were this week killed and seven others injured when steel-shuttering and concrete-lining collapsed on them in Standerton.

In another mine accident the same day, one miner Mr Jack Ncubuka (31) and 19 injured at the Geduld Gold Mine after a severe earth tremor in Welkom, Free State.

About 7,000 mine workers had to leave their damaged shafts by alternative routes, but a mine spokesman said they were not trapped.

By yesterday, three were still missing and a search team of 100 were busy searching for them. Mine officials believed the three were still alive.

Sapa reports that the accident occurred during a shaft-sinking operation on the central mine service shaft. The cause of the accident was being investigated by the Government's Mining Engineers Department, and the names of the dead and injured have not been released pending notification of their next of kin.

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Tremors:
Johannesburg

Three black miners missing at Free State Geduld mine after several earth tremors were found dead early today.

The men, who were seen alive after the first tremor on Tuesday morning, had apparently sought refuge in a steep ore pass tunnel where a second tremor caused a rockfall which killed them.

Their bodies will be brought to the surface today by rescuers making a hike of many kilometres through mine tunnels.

Mr Karel Opperman, the mine manager, said it was not known yet when the two shafts, knocked out by the tremors would be back in operation. — Sapa.
Miner dies in tremor

Johannesburg — Three mineworkers are missing and one miner has died after an earth tremor shook the Free State Geduld mine at Welkom on Tuesday, trapping 7,000 underground.

"Two of" the mine's lift shafts were put out of action and a dramatic rescue operation was mounted to lead the thousands of miners to safety through pitch-black, dust-filled mine tunnels.

The one fatality, Mr. Jack Paseka Nebubuka, 31, a senior miner from KwaZulu, was killed by falling debris just after the tremor occurred at 12:37pm.

Yesterday, 20 miners were still in the Oppenheimer mine hospital in Welkom with injuries. The condition of four was serious but they were "definitely out of danger." Twenty miners suffered heat exhaustion and 120 others had minor abrasions and bruises.

The earth tremor, registering five on the Richter scale and followed by four smaller shocks, caused immediate havoc in the long mine corridors below the damaged No 1 and No 4 shafts.

These two shafts, which are 1,400m apart, shifted dangerously at a depth of 1,300m and put the lifts out of action.

Thousands of frightened miners milled about for long, horror-filled minutes in the dust-filled tunnels.

Yesterday, mining in all but the two damaged shafts continued.
MINERS DIE

THE bodies of three black mineworkers were found early yesterday morning in a disused ore-pass at the Free State Geduld Gold Mine near Welkom which was shaken by several earth tremors on Tuesday. A spokesman for Anglo American said in Johannesburg:

This brings the total number of men killed in the incident to four.
Miners died as they sheltered in shaft

Mail Reporter
THREE more miners were found dead at the Free State Geduld Gold Mine near Welkom yesterday, bringing to four the number killed at the mine — which was shaken by five earth tremors on Tuesday.

The three bodies were brought to the surface yesterday by search teams who were sent out when it was realised the three men were missing after 7,000 of their colleagues were brought to the surface in a massive 10-hour rescue mission.

The bodies were found in a disused ore shaft 1,400m below ground.

The victims' names are being withheld until their next of kin have been notified.

The panic-stricken men had apparently crawled into the ore shaft in a bid to escape shortly after the first tremor struck at 1:27pm, mine officials said.

The 7,000 miners were trapped underground because the tremors, which registered five on the Richter scale, had put Nos 1 and 4 lift shafts out of action.

The two shafts were still being repaired yesterday.

Production in the mine below will not resume until engineers certify they are safe. This may not be for several more days, a mine officials said.

Engineers are still working round-the-clock to repair and test the two damaged, 700m-long sections which are 1,400m beneath the surface.

"This is a painstakingly slow procedure. Every centimetre has to be sanded with the semce equipment to test its strength and, also, shifted sections have to be shaved off," he said.

Tomorrow the Rand Daily Mail will publish an exclusive account of how 60 of the mine's senior officials led the thousands of frightened men to safety through dust-filled, disused tunnels."
Three more added to mine death toll

Own Correspondent

JOHANNESBURG — Three more miners were found dead at the Free State Geduld gold mine near Welkom yesterday, bringing the total number of dead at the mine — which was shaken by five earth tremors on Tuesday — to four.

The three men were brought to the surface yesterday afternoon by search teams sent out when it was realized the three men were still missing after 7,000 colleagues had been brought to the surface during a massive 10-hour rescue mission.

The bodies were found in a disused ore shaft 1,400 m below the disabled No. 4 shaft. Their names will not be released until next-of-kin have been notified.

The panic-stricken men had apparently crawled into the ore-shaft shortly after the first of five tremors struck at 127pm in a frenzied attempt to escape, mine officials said.

The 7,000 miners were trapped underground because the tremors, which registered five on the Richter scale, had disabled lift shafts No. 1 and No. 4.

The two shafts were still being repaired yesterday, and production in the slopes below would not be resumed until engineers certified them safe for use.

This might take several more days, a mine official said yesterday.

Engineers are still working round-the-clock to repair and test the two damaged, 700 m-long sections, which are 1,400 m beneath the surface.

"This is a painstakingly slow procedure. Every centimetre has to be sounded with seismic equipment to test their strength and also, the shifted sections have to be shaved off," he said.
How 7,000 miners surfaced alive

ADA STUIJT reports on the dramatic Welkom mine disaster rescue operation.

"The first human reaction after such a shock hits your system is to run to the surface. The immediate instinct is to crawl into the first upward-bending tunnel you see," says a mine safety specialist.

Mr. Opperman used his senior personnel's knowledge of the mine and its tunnels to cross the levels underground.

The miners volunteered to go down the undamaged No. 2 and 3 shafts while the worried colleagues were waiting with their rescue team. When they arrived, they were transported to the surface.

The thousands of miners had to walk and crawl, side by side, down inclining shafts and climb across waterpipes and ore-rails for many kilometres in the gloomy tunnels, lit only by light from their miners' helmets.

Four miners died during the tremor, and the remaining miners had to break through the mine's roof to reach the surface.

The three dead men were brought to the surface on Wednesday after search teams had found them — 24 hours after they were reported missing.

All the rescuers were "back on the job as usual" this week — it was their general manager. For him, there was only one way to describe the rescue: "That's a miner's life," he said.

And those miners had plenty of work to catch up with two mine shafts needed repair, mine tunnels required damage inspection.

And of course, it was business as usual.

One still waited in the bowels of the mine from which these 7,000 colleagues had been so efficiently rescued that week.

For the precious gold mine that one man risked his life and many more save lives.

That will never change.
JOHANNESBURG — A miner was killed and seven were slightly injured after an earth tremor and pressure burst at the Vaal Reefs Gold Mine near Klerksdorp in the Western Transvaal yesterday. The tremor measured 3.6 on the Richter scale and affected the mine's No. 4 shaft. Production was only marginally affected. The name of the dead man has not been released as his next-of-kin have yet to be informed.
— Sapa
Four miners were killed last night in separate incidents at two Anglo American Corporation gold mines.

At Vaal Reefs, south-west of Johannesburg, a minor earth tremor killed two and injured seven but there was little damage.

A rockburst at Western Deep Levels, south-west of Johannesburg, also killed two miners and a search was started for three who were missing. Damage was slight. — Reuter
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**Address:** 2014 City Centre Corporation Street Cape Town 8000
**Telephone:** (021) 433658

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**Rock Burst**
A Rock burst at the Western Deep Levels Gold Mine at 10.22 am on Tuesday, 24th November, occurred in the carbon leader workings east of the Number 3 Shaft at a depth of about 2,700 metres below the surface. Two surface drills were hit by the rock burst.

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**JEWELERS AND COLLEGIATES UNION**

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**Dentists' Association of South Africa**

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**Jewellers and Goldsmiths' Association of South Africa**
Search for missing miners
Mail Reporter

The union distressed from

RESCU workers last night were digging through tons of rubble and rock for two missing miners after an explosion at Western Deep Levels, near Carletonville, which killed three miners.

On Tuesday two miners were killed and seven injured after a pressure burst at Vaal Reefs near Klerksdorp.

A light fire

Industry

Industrial Council for the Chemical Manufacturing

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| Address: P.O. Box 4990 |

| Secretory: D. Small |

| Organization: Industrial Council |

| Registration: Yes |

| Founded: 2000 |

| Area of Operation: |

| Tel. 93 |

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Four black miners workers died in Buffelsfontein Gold Mine near Klerksdorp on Saturday when a fire broke out 2000 m underground, a spokesman for Gencor said in Johannesburg today.

The area was immediately sealed off but a rescue team found three men dead, apparently overcome by smoke.

A fourth man, a member of an investigation team, died yesterday from gas inhalation.

The fire is thought to have been caused by a welding machine.

The exact cause would be investigated, the spokesman said.

He said the fire had been brought under control.

Production had been only slightly affected and this morning's shift had gone down as usual.

— Sapa
THE COMMITTEE COMMENTED AS FOLLOWS:

Recommendation 1.
That the universities keep the administration under constant review from time to time.

Comment.
The Committee recommended approval.

Recommendation 2.
That any transfer to the Senate of functions proper to the Council should be guarded against.

Comment.
While the Committee recommended approval, it drew attention to the fact that the recommendation appears to be too rigidly worded and may prohibit any future change in the existing functions from Council to Senate. The Committee considered that changes in the functions of Senate and Council should be made possible, provided they are carried out legally and constitutionally.

Recommendation 3.
That each university consolidate all its regulations and statutes as soon as possible and keep them up to date and submit copies, as amended and supplemented from time to time, to the Department of National Education.

Comment.
The Committee noted the Recommendation.

Recommendation 4.
That the mechanisms recommended by the Commission, viz the State subvention formula, the reorganised U.A.C. (A.C.U.), liaison and interaction between universities and other institutions will jointly function efficiently over the next decades.

Comment.
The Committee noted the above Recommendation which appeared to be a Finding.

Recommendation 5.
That from an organisational, administrative and academic point of view, the ten White residential universities and Unisa will be able effectively to supply the need for university education during the next three of four decades.
Four miners die in fire underground

Mail Reporter

FOUR mine workers died after a fire broke out underground at the Buffelsfontein gold mine near Klerksdorp at the weekend.

The fire broke out on Saturday and the affected area was immediately sealed off, a spokesman for the General Mining Union Corporation, which owns the mine, said yesterday.

Rescue workers found the bodies of three men.

A fourth man — a member of an investigative team — died on Sunday from gas inhalation.

The cause of the fire is being investigated. It was extinguished yesterday.

Four miners, the only ones who could be reached on the scene, died in the blaze.

As the fire broke out, the men were engaged in research on this mine. In the course of their work, they found themselves trapped by smoke. The search for oxygen, deceptively present, was not enough for them.

Reasons for the fire were not given.

The cause of the fire is being investigated. It was extinguished yesterday.

Although teaching staffs were not given time for private study and research, teaching staffs were given time for private study and research, as staffs were not given time for private study and research.

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The teaching staffs were given time for private study and research, as staffs were not given time for private study and research.
Pink Eye hits 400 miners

A NUMBER of patients in a sanatorium in the West Rand have fallen victim to the Pink Eye epidemic.

The disease has also spread to a gold mine in the West Rand, where a total of 400 miners were treated at the Lebanon Mine near Westonaria during the past week.

At the Rand West Mental Hospital, a large number of patients are being treated each day since the outbreak of Pink Eye about two weeks ago. Authorities confirmed that the disease had struck at the hospital, but refused to reveal the number of patients who are affected.

He said the disease was now under control and a doctor is currently busy treating the patients.

By LEN KALANE

Reports reaching The SOWETAN show that about 12 patients are being removed from their wards each day to get treatment. The largest number was when 36 patients were treated in one day during last week.

The total number of patients who have had Pink Eye at the hospital is unknown and further enquirers were referred to the State Health Department in Pretoria.

It is also believed that Pink Eye has struck at the Sterkfontein Sanatorium near Krugersdorp but the superintendent at Sterkfontein, Dr. G. Withshaw, said he had no comment to make concerning these allegations. He referred The SOWETAN to the St. John Eye Hospital.

At the Lebanon Gold Mine, the compound manager said Pink Eye problems started at the beginning of May and miners had to be removed from their crowded hostels to be treated at a rate of about 50 each day. The total number of miners who have contracted the disease shot up to 400 last week. The mine has a total of 7,300 workers, he said.

He said production was not affected during the week when the disease was at its worst.
Argus Correspondent

Johannesburg  17/6/23

One miner is believed to have been killed and 26 miners injured in a rock burst at the West Rand Consolidated Mine at Krugersdorp early today.

Some of the injured are said to be in a serious condition.

A spokesman for the ambulance department said today that 25 of the injured miners were blacks and had been admitted to the mine hospital while the other had been taken to the Cottage Hospital in Johannesburg, suffering from head injuries.

The men were trapped underground at about 6 am when the rock burst occurred. The resultant tremor was felt several kilometres from the mine.
Miner dies in West Rand tremor

At least one black miner was killed and six others injured when a rockfall occurred following an earth tremor at the West Rand Consolidated Mine near Krugersdorp yesterday.

Earlier reports reaching The SOWETAN indicated that a major mine disaster had occurred with people trapped underground. A Public Relations Officer for the mine, Ms Sandra Nel, said as far as she knew 16 people had been trapped.

On investigating, a SOWETAN team was escorted out of the Deep Shaft at the mine by an official who said they were trespassing and warned that the team should not report the incident. There were a number of ambulances parked in front of the Deep Shaft apparently waiting for rescuers to bring injured miners to the surface.

Inquiries were referred to Gencos, the head office in Johannesburg, where several attempts to contact the senior manager, Mr P L Grunbeek, were futile. However, the PRO for the Johannesburg office, Mr Neil Ackerman, said he did not have all the facts but has sent a statement to the South African Press Association (SAPA).

He said only one person had died when the rockfall occurred yesterday morning at about 6:30. He said nobody had been trapped underground and those injured had probably been sent to a mine hospital.
WINDHOEK — CDM's Mittag mine near Oranjemund has been judged the safest large mine in Namibia and South Africa. It is the first time a Namibian mine has won the National Occupational Safety Organisation competition for mines with more than 250 employees.

Mittag is at Consolidated Diamond Mine's No. 2 plant area and consists of mining and metallurgical sections as well as an engineering complex at Udvjob.

The company had also won an award by the SWA/Namibian Chamber of Mines for working more than a million shifts without a fatal accident — Sapa.
Worker missing in mine explosion

East Rand Bureau

An intensive search has been launched for a carpenter missing since yesterday's explosion at Grootvlei Proprietary Mines, near Springs.

Six men died and 14 were injured.

The missing man is Mr. H. P. G. Jantzen, a carpenter Mine officials fear he may not have survived.

The explosion occurred in the mine's Number 4 shaft.

BURNS

Among the dead were Mr. Nick Jacobs (49) and Mr. M. C. Hambroek, both of Springs, and Mr. Koos Joubert (59), of Brakpan.

Most of the injured, mainly black, were admitted to the Rand Mutual Mine Hospital in Johannesburg with burns.

One of them is reported to be in a serious condition.

CAGE

Mr. H. de Lange, of Selection Park, Springs, also injured in the explosion, was admitted to the Cottard Mine Hospital in Johannesburg.

He was later transferred to Springs.

According to a spokesman for the mine the accident occurred about 7 am when the cage in which the men were travelling was leaving an intermediate pump station underground.

An electrical fault in one of the pump station starters is believed to have been the cause of the blast. The damaged cage continued to the surface where the injured and two dead were removed.

GASES

Two bodies were recovered from the pump station and two from the mine.

A five-man rescue team was sent down to the pump station soon after the explosion to ensure that the area was clear of toxic gases.

The spokesman said production had been marginally affected.

"The Chief Inspector of Mines accompanied me down the mine yesterday and he was of the opinion I hold that the explosion was probably caused by an electrical fault," said the spokesman.

DRIVER

Mr. Jacobs, of Vischkuil Small Holdings was a fitter and turner at the mine.

He leaves a wife Lizzie and three children, Nick (25), Kohe (21) and Karin (11).

Mr. Jonker of Prince George Street, was a hoist driver. He leaves a wife Mien, and two daughters, Annalie (25) and Anneke (15).

Mr. Haabrook, of Aston Wood, was a carpenter.
Miner missing after blast

Argus Correspondent

JOHANNESBURG — A search has been launched for a mineworker who has been missing since yesterday's explosion at Grootvlei Proprietary Mines near Springs, in which six men were killed and 14 injured.

The missing man is Mr H P G Jantzen, an underground carpenter.

The explosion in the mine's No 4 shaft happened about 8 am.

Three of the mineworkers who were killed were Mr Nick Jacobs, 49, Mr M C Handrock of Springs, and Mr Koos Jonker, 59 of Britsian.

The names of the three other dead will be released when their next-of-kin have been informed.

IN HOSPITAL

The injured, who are mainly black, were admitted to Rand Mutual Mine Hospital, Johannesburg, with electrical burns. One of them is reported to be in a serious condition.

Mr H de Lange of Selection Park, Springs, who was also injured in the explosion, was admitted to Cottisloe Mine Hospital, Johannesburg, but was later transferred back to Springs.
Nine injured as blast shatters shaft cage on East Rand mine

SIX DIE IN EXPLOSION

Soweto 28/6/83 (212)

AT least six mineworkers, three of them whites, are believed to have been killed and several injured in an explosion at the Grootvlei Proprietary Mine on the East Rand yesterday.

The explosion, said to have occurred just after 8am happened when the cables propelling the shaft cage exploded. Fifteen miners were travelling in the cage at Number Four Shaft.

The accident was apparently the result of an electrical fault in the intermediate shaft pump stations and took place as the cage was passing the pump station, a mine spokesman said. He could not elaborate further as investigations into the explosion are still underway.

Mineworkers in the area said they had heard about the accident but had been barred from going near the scene where there is a heavy presence of white officials.

By LEN KALANE

A clerk at the compound said the place has been cordoned off. He hasn't heard any developments. They don't want us to come near.

An employee at the mine hospital said the bodies of three whites and three blacks killed in the explosion were in the mortuary. He said nine other injured miners were rushed to Woesla in Johannesburg with facial burns.

Initial reports indicated that two people had died in the explosion but later a mine employee said the number had gone up to six. It was not clear whether other miners were trapped as reports showed that the affected cage was put out of operation.
Mine blast: missing miner feared dead

The search for the miner who disappeared after Sunday's explosion in which six were killed and 14 injured at the Number 4 shaft at Grootevlei Proprietary Mines near Springs is continuing.

Mine officials now fear that Mr H P G Jantzen, a carpenter, was killed in the explosion which claimed the lives of Mr Koos Jonker 59, of Brakpan, Mr Nick Jacobs, 49, of Springs, and Mr M C Haabrecht also of Springs.

The names of the other three dead will not be released until their next-of-kin are informed.

Most of the injured have been admitted to the Rand Mutual Hospital in Johannesburg with burns.

Mine officials say the explosion occurred at an intermediate pump station on the fourth level, 700m below ground and about 50m from the lift shaft.

The explosion apparently happened when the three-tier cage lift containing the workers was about to pull to the surface.

It blew the steel door off the bottom cage of the lift and buckled the back of the cage.

It is believed that an electrical fault in one of the pump station's starters could have been the cause of the blast.

The general manager at Grootevlei, Mr G W Patzer, said the blast was, as far as could be established, the first type of its kind in South African mining history.

The Department of Mines has started an inquiry into the accident.

Repairs to the shaft are expected to take about four days and production at the mine has been marginally affected.
Grootvlei Mine, 8am Sunday

EXPLOSION AT PUMP STATION (50m from shaft) OCCURRED AS HOIST WAS LEAVING 4TH LEVEL

2 bodies found at pump station

2 bodies found in mine

HOIST CONTINUED TO SURFACE WITH 16 MEN — 2 DEAD 14 INJURED

Missing man presumed to have fallen down shaft

Shaft plugged at 1090m below surface

A graphic showing No 4 Shaft at Grootvlei Proprietary Mines where six miners were killed and 14 injured during an explosion on Sunday. The explosion apparently happened when the three-tier lift cage carrying the workers was about to pull to the surface.
THE number of miners killed in the weekend explosion at the Groote Uitspan Proprietary Mines on the East Rand has now increased to seven, with three blacks and four whites dead.

The seventh miner, a white man, is suspected to have fallen to the bottom of the shaft after the explosion. He was identified as Mr H P G Jantzen of South Africa. Springs.

Latest reports indicate that the condition of a seriously injured black miner, still unnamed, is improving.
Body of seventh Grootvlei blast victim recovered

Mail Reporter

The body of the seventh miner killed in the Grootvlei mine explosion at Springs on Sunday has been recovered.

He was Mr Henry Jantzen, 24, of Hansom Road, Strubenvale, who was found at the bottom of the Number 4 Shaft where six other miners were killed and 14 injured.

The explosion, about 700m below surface, killed Mr Koos Junker, 58, of Brakpan, Mr Nic Jacobs, 49, of Vischkuil, Springs, and Mr N. C. Haasbroek, also from Springs. The other victims cannot be identified until their families have been informed.

Mr Jantzen, a carpenter, was to have married Miss Irene Berry, 23, in November. He was the son of Mr and Mrs Gotthard Jantzen of Hennekam, in the Free State.

The explosion occurred at an intermediate pump station on the 4th level as a three-tiered cage lift containing the 16 men was about to pull to the surface.

The steel door was blown off the bottom cage of the lift.

The Department of Mines is investigating.
The announcement, following a cabinet meeting, came amid the growing prospect of an Israeli military attack on Beirut if a political solution to the guerrilla presence is not found.

**East Rand mine blast kills six**

Six mine workers were killed and 14 others injured in an explosion at the No 4 shaft at Gauteng, near Vereeniging. The blast came just after 8 am yesterday.

Among those killed were Mr J. Lekker of Brakpan and Mr M. H. Haasbroek and Mr M. J. jakes of Springs. The names of the other three have been withheld until their next of kin have been informed.

One worker was missing and an injured man was in a serious condition last night. A mine spokesman said.

The accident was still being investigated, but it appeared to have been associated with an electrical fault, the spokesman said.

The accident at the underground pump station damaged the shaft and repair work is expected to take four days to complete. Production will be marginally affected, the spokesman added. — Sapa

**The general Matts Petter a professor at Tel Aviv University, charged the government had lied to the people about the objectives of the invasion. He said that soldiers at the front were now questioning the strategy.**

**Ambition of Capt Astiz**

**For a smoother path**

In his column on the media this week the Rand Daily Mail's Malcolm and Andrew McClennan, takes another critical look at the registration of newspapers Amendment Bill and its effects on the SABC and comes to the conclusion that a single code of conduct for the electronic and newspaper media is almost impossible.

A small group of 'Peace Now' army reservists who until a few days ago were serving at the front have pitched a tent outside Mr. Begin's office, saying they will maintain a round-the-clock protest vigil.

In the statement issued after the lengthy cabinet meeting, Israel gave a pledge to maintain the latest cease-fire unless fired on by the Israeli forces, saying they will maintain a round-the-clock protest vigil.

**Thousands of Zimbabweans p**

**HARARE — Hundreds of people have been arrested in Bulawayo in the past two days in a major joint operation by Zimbabwe police and army units to track down anti-government dissidents.**

Helicopters swooped over the western suburbs yesterday broadcasting warnings to the populace to surrender. Police said that many had been rounded up in searches of homes and arrested for 'possession of weapons and incendiary devices'.

**HARARE** — Hundreds of people have been arrested in Bulawayo in the past two days in a major joint operation by Zimbabwe police and army units to track down anti-government dissidents. Police ordered helicopters to swoop over the western suburbs yesterday, warning residents to surrender, or face arrest for 'possession of weapons and incendiary devices'.

**Mail Africa Bureau**

**A critical assessment**

In his column on the media this week the Rand Daily Mail's Malcolm and Andrew McClennan, takes another critical look at the registration of newspapers Amendment Bill and its effects on the SABC and comes to the conclusion that a single code of conduct for the electronic and newspaper media is almost impossible.

The statement, read to reporters by the cabinet spokesman, Mr Dan Menzies, said the Israeli army would ensure that the estimated 6,000 guerrillas had safe passage along the sector of the road it now controls.

"The departing column of terrorists under the protection of the Israeli armed forces will be allowed to pass through our area," Menzies said.

Willem Strong, left, and Ralph Rosen came all the way from Cape Town to see the ballsiing championships which were to be held at Lonehill, when the race was called off because of unfavourable winds.
Search for three miners hindered

West Rand Bureau
CARLETONVILLE — A team of about 45 rescue workers are searching for three miners trapped in a mine after a stop collapse. Eighteen injured miners were brought to the surface and a rescue team was formed to conduct the search for the missing.

Six men were found and brought up last night — one was dead and another seriously injured. Four were uninjured.

Three miners remain trapped since 5:00 am yesterday and will be in poor, humid conditions.

A mine spokesman said rescue teams comprising mine workers would work continuously in relays in the search for the trapped men. "We are working on the assumption that they are still alive," the spokesman said.

"They will become dehydrated after 72 hours but some do have higher levels. Some miners have climbed to be rescued after six days.

The men were working in cramped conditions and at some places the stopes were lower than 1 m. Limited working space and fractured rock is hindering the rescue operation. It could not be said when the men would be found or for how long the operation would continue.

Bus bandits snatch R700

A Johannesburg man was robbed of R700 while travelling home on the top deck of a double-decker bus yesterday.

Mr. J.J. Esterhuizen (54) of Leo Street, Kempton Park, two armed men as...
A race to free trapped miners

By NORMAN PATTERTON

A TEAM of 45 rescue workers were racing against time last night to save three miners trapped 2km underground at the West Driefontein gold mine at Carletonville.

Eighteen injured miners were brought to the surface after an earthquake measuring 3.5 on the Richter scale caused a slope to collapse near the mine's No 5 west subvertical shaft at 11am.

One miner was discovered dead last night.

The three miners still missing have been trapped amid "miserable" conditions since then.

Late last night a rescue team reported on the telephone link to the surface that one of them was found to be alive, although seriously hurt.

The other two had not been found yet.

"If they are still alive, they are in darkness amid miserable conditions," said a mine spokesman.

They had been underground since 5am, when they went on duty.

The batteries for their helmet lights would have lasted till 6pm last night, unless they switched off their lights periodically to conserve power.

Ventilation is severely impeded, and temperatures are soaring back to the high "virgin rock temperature" because the water pipes burst.

Last night assistant manager Mr Syd Caddie said the slope that collapsed was excavated to proportions 1m high and 15m wide.

"It's like taking the ham out of a ham sandwich," he said.

He roughly estimated that the two miners would be found early today. Rescue workers had started to work towards them from a different direction.

During the rescue operation small rockfalls continued...
Rescuers battle to reach trapped miners

BY MOKONE MOLETE

ONE of the four miners still trapped 2.2km underground by a rock collapse at the West Driefontein gold mine at Carletonville is believed to have died. Rescue workers were yesterday desperately trying to reach the other three.

The men were trapped on Friday morning. A spokesman for the mine said the accident was caused by an earth tremor which registered 3.9 on the Richter scale. This resulted in the collapse of a stope near the mine's No 5 west sub-vertical shaft.

Mine manager Mr David BlearHooch said 18 blacks were injured in the accident. Seven have been discharged from hospital. The names of the injured men could not be released. One man was found dead on Friday.

The rescue was progressing slowly but there was enough oxygen for the trapped men.
JOHANNESBURG — Five men died in two separate accidents at mines on the Witwatersrand yesterday.

Two men were killed and 16 injured when a geyser burst at the No 8 Shaft hostel at Vaal Reefs Gold Mine early yesterday.

Mr R Hudson, a public relations officer for the Anglo American Corporation, said the incident happened at 1.30am yesterday.

He said it was presumed that the geyser was near the dormitory because of the resultant deaths and number of injuries. The cause of the burst was not known and was still being investigated.

The names of the dead men have been withheld until all next-of-kin have been informed.

Sapa reports that three men were killed in a rockburst at the Western Deep Levels No 2 shaft near Carletonville early yesterday.
Three men were killed in a
rockburst at Western Deep
Levels No 2 shaft near Carle-
townville in the early hours of
yesterday morning and two
men were killed and 16 in-
jured when a geyser burst at
the nearby Vaal Reefs Gold
Mine
Mr Rob Hudson, a public
relations officer for the
Anglo American Corpora-
tion, said the cause of the
geyser burst in Number 8
Shaft Hostel at Vaal Reefs
mine near Carletonville at
2:30 yesterday morning was
unknown and under
investigation
He said it was presumed
that the geyser was situated
near the dormitory because
of the resultant deaths and
number of injuries
The names of the men
killed in both accidents have
been withheld until the next-
dozen have been informed
WELKOM — The bodies of the three miners missing in an accident at Beisa mine here were found late yesterday, bringing the number of victims to eight.

The accident occurred in the underground loading station at the mine's number one shaft.

One of the miners killed was Mr Peter Baker. The names of the other seven will be released when their next-of-kin have been informed.

A total of 14 people were working in the complex when the accident occurred.

Mr Baker, 29, was married with two children.

— SAPA
12 miners die from shaft fire smoke

By ANTON HARBOR

TOXIC smoke from a fire in a disused section of the Buffelsfontein gold mine near Klerksdorp killed 12 black miners yesterday.

And 163 other miners were admitted to the Stilfontein mine hospital after the eight-hour drama involving 4,000 workers and seven rescue teams, a Gencor spokesman said.

Eight were still being treated last night, and the rest were later discharged, he said.

The spokesman said the fire came at the most dangerous time — during the main shift — and could have been "much, much worse" if the other miners had not been brought to the surface swiftly.

The fire was spotted by two workers joining the 7 a.m. shift yesterday.

The two were travelling down a haulage tunnel 2,200m below the surface when they noticed thick black smoke from a worked-out stop.

The two men went down one level to find fresh air and alerted the rescue teams.

"The smoke travels terribly fast at that level, so the 12 dead must have been on the same level as the fire and were overtaken by it," the spokesman said.

None of the miners suffered burns. Most workers made their own way to the surface, but the rescue teams found 24 miners who had moved to the level below the fire and were waiting for assistance.

"It is terribly difficult when a fire breaks out during a working shift, because there are almost 5,000 people who could be affected by the smoke," he said.

"We were very lucky. Only an act of God kept the deaths so low," he said.

The spokesman said the rescue teams had scaled off the stop and, since there was no damage to the rest of the mine, production would resume as normal today.

Earlier the spokesman had reported 14 miners had been killed.

"I suppose in the initial confusion, somebody must have got the count wrong," he said.

None of the injured are serious and the last eight miners should be discharged from hospital within 24 hours, the spokesman said.
12 miners die in tragic fire accident

TEN black mine-workers have died in the Buffelsfontein Gold Mine near Stofffontein.

Love Story

It was not until late at night that I arrived home. My heart was aching my feet were killing me, and all I looked forward to was a good night's sleep. But how could I possibly expect to sleep well after all the drama of the day — and night?

To get to the bottom of this don't miss our SHORT STORY of THE WEEK — A Woman Scorned — in THE SOWETAN tomorrow. It will keep you guessing right to the end.

The statement said 163 black mine-workers had been admitted to hospital for observation, of whom all but eight had been discharged. "The latter are not in a serious condition. In all, seven rescue teams were included in the rescue operations. The cause of the fire has not yet been established."

The area affected had previously been scaled off. The mine's production will not be affected," the statement said.

— Sapa

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PLEASE note the date of October 1. Regrettably, on this day the centre price of The SOWETAN will go up from 15 cents to 19 cents plus 1 cent GST. You will therefore pay 20 cents for your SOWETAN from that day.

Like everybody else, the SOWETAN has been hit hard by increases in the price of raw materials and labour. We kept our price down for as long as we could and, indeed, were the only newspaper still selling at 15 cents. But even at 20 cents you will find The SOWETAN good value for money.
12 die in gold mine fire

Own Correspondent

JOHANNESBURG - Twelve miners suffocated to death and 163 were taken to hospital when a fire in a disused section of the Buffelsfontein gold mine near Klerksdorp filled a working shaft with toxic smoke yesterday.

The 163 miners were admitted to the Stilfontein mine hospital after the eight-hour drama involving 4,000 workers and seven rescue teams, according to a Gencor spokesman. Eight miners were kept overnight at the hospital and the rest were discharged.

The spokesman said the fire was during the main shift and could have been "much much worse".

"It is terribly difficult when a fire breaks out during a working shift because there are almost 5,000 people who could be affected by the smoke."

The spokesman said the rescue teams had sealed off the stope and there was no damage to the rest of the mine so production would resume as usual tomorrow.

None of those in hospital was in a serious condition and the last eight miners should be discharged from hospital within 24 hours, he said.
THE eight miners who were admitted to hospital after a fire accident at the Buffelsfontein Gold Mine near Stillfontein on Tuesday were yesterday reported to be in a better condition.

A spokesman for Gencor yesterday said the hospital had told them that the miners were out of danger. Some of them were due to be discharged yesterday afternoon and others today.

Sixteen miners were admitted to hospital for observation after the incident, eight were kept overnight and the rest were treated and discharged.

Twelve men died of asphyxiation on Tuesday.
Risks in deep level mining

IN HIS letter "No silence on mine safety," (RDM September 15) Mr John Imrie, Public Relations Adviser of the Chamber of Mines, in replying to the three questions posed in "Bulk" of September 15, answers the first, evades the second and gives an equivocal answer to the third.

The questions were:

- How many people are killed each year? Mr Imrie quoted "633 fatal accidents on gold mines in 1989."
- Is the safety record improving? Mr Imrie gave no reply.
- How does it compare—and on what basis—with other countries? Mr Imrie said "it is not possible, meaningfully, to compare South African gold mines' safety records with safety records elsewhere."

While there is some truth in the third answer it is not wholly true. While actual rates may not be comparable, trends certainly are. The attached graph shows trends on South African gold mines compared with trends in British (narrow seam, deep) coal mines. While British fatality rates have decreased from 0.9/1 000 pa in 1948 to 0.25 in 1975, in the same period South African rates have wavered around 1.4.

In the same period British productivity rates rose from 255 tons/man/year to 405 (69%); while South African rates rose from 180 to 300 (66%). The answer to the second question is,—in terms of lives lost per person employed or per ton mined, and despite the achievements of "five stars", and "million accident free shifts"—"not significantly."

In Britain, progress in the adoption of mechanized mining methods, made possible by successful strata control procedures, was responsible for the marked improvements in both productivity and safety. While it is true that in the period 1948-75 in South Africa some deep fields were opened up, it is also true that some shallow fields were too, eg Kinross and parts of the Par West, Klerksdorp and the CPS.

Until the industry can evolve more effective strata control procedures than the present ones, deep level mining in South Africa will remain a risk. —JACK CURTIS, Norwood, Johannesburg
Rockfall kills two miners

TWO workers were killed by a rockfall at Impala’s Bafokeng South mine in Bophuthatswana early on Wednesday morning.

The accident at the mine, north of Rustenburg, occurred in the No 4 sub-incline shaft, 326m below the surface.

A fall of ground above an ore loading box led to about 150 tons of broken ore pouring out of the, killing the two workers. One was operating the loading box and the other was standing on a platform.

The bodies have not yet been recovered. — EPA.
Two miners die in rockfall

TWO BLACK workers were killed in a rockfall at Impala's Bafokeng South Mine in Bophuthatswana early on Tuesday morning.

The accident at the mine, north of Rustenburg, occurred in the number four sub-incline shaft, 526 metres below the surface.

A fall of ground above the ore-loading box front led to about 150 tons of broken ore pouring out of the ore-loading box, killing the two workers.

One was operating the loading box and the other was standing on a platform.

The bodies have not yet been recovered. — Sapa
Innovation
to speed up
mine rescue

A DESIGN which could significantly reduce the time taken by special rescue drills to reach coal miners trapped underground has earned its originator an award from the Chamber of Mines.

Mr Frank Fanoe, a rescue drill supervisor at the Colliery Training College in Witbank, received the R3 000 award from the President of the Chamber, Mr W W Malan, yesterday.

Mr Fanoe's design overcomes certain problems associated with the installation of flexible casings used to line large diameter holes in mines when large quantities of water are encountered in rescue drilling.

Using Mr Fanoe's design, the casings can be installed much faster, speeding up the rescue of trapped miners.

Yesterday's award was Mr Fanoe's second for design — Sapa.
Miner dies in bed explosion

Mail Reporter

A STILFONTEIN miner worker died at the weekend while lying on his bed when four detonators strapped to his chest exploded.

Mr. Albert Bellington Petersen, 42, of Canol Street, leaves his wife and three children.

Major A Schepers, police liaison officer for the Western Transvaal, said yesterday Mr. Petersen died on Friday and no crime was suspected.

"It is possible that Mr. Petersen took the detonators from the mine on which he worked," he said.
SA's 'Red Adair' on standby

Giant drill can
gouge hole to
trapped miners

By Stephen
McQuillan

Frank Fanoe is the
Red Adair of the
South African coal-
fields.

He and a six-man
rescue team are on
24-hour standby for
disaster. The team, based
at the Colliery Training
College, Witbank, is
ready to take its expe-
rtsise and equipment
anywhere in the coun-
try at a moment's
notice.

Its job to save life

As Red Adair looks
after the oilfields,
Frank Fanoe (41), and
his men look after the
coalfields.

If catastrophe strikes
at a colliery and the
miners' workplace
threatens to become
t heir tomb, it will be
Frank and his men
who will be sent to get
them out.

SPECIALISED

To help them, they
have some of the most
specialised equipment
in the world, including
a giant drill — the
only one of its type in
the world to be used
for rescue — to pull
out trapped miners
hundreds of metres
underground.

The team first drills
smaller holes to locate
the men and set up a
supply-line of food,
water and medical
equipment.

As soon as the
miners' life-line has
been established a big
drill or "mole" will
swing into action. Its
650-mm bit will claw its
way through the earth
until it penetrates the
mine.

The hole will be big
enough to pull out the
trapped men one at a
time in a rescue pod or
parachute-style sling.

And it is the operation
of the giant drill that
has brought Frank
recognition from the
mining community —
thanks to his innova-
tive skills.

Frank, who was a
fitter and turner, joined
the college more than
five years ago after a
spell working under-
ground. On October 1 he was awarded R3 000 for his contribu-
tion to mine safety through development carried out at the
college.

A college instructor
and rescue drill super-
vior, Frank was given
the cash prize in recog-
nition of his efforts to
overcome one of the
major problems asso-
ciated with drilling the
life-saving shaft.

When using the drill
in training it was some-
times necessary to line
the shaft with steel cas-
ing to protect land-
slips and excessive
amounts of water. But
the team discovered it
was often difficult to
install the metal "tube"
and very slow because
it was too rigid.

Frank overcame
these problems by de-
signing a steel case
that was flexible. And
the Chamber of Mines
sees his invention as
significant to mining
operations throughout
the world. The cham-
ber has patented the
invention.

"We are using the
biggest down-the-hole
hammer drill in the
world," said Frank. "It
is owned by the Cham-
ber of Mines and is the
only one in the coal-
field.

"Sometimes the drill
couldn't handle exces-
sive amounts of water,
or earth would collapse
around the drill, so the
casing is important.
But sometimes it was
too difficult to get
the casing into the hole
because it was too
rigid.

The award was the
second time Frank had
been recognised for his
technical know-how. In
1980 he was credited
for his modifications to
the rescue drill. He
designed a more effec-
tive bit to cut more
easily through the top
layer of earth and
equipment to remove
the cuttings from the
hole.

CRITICAL

In presenting Frank
with his prize, President
of the Chamber of
Mines, Mr W W Malan
said the invention
saved time and money.

"Were the drills to be
used in an emergen-
cy in an attempt to
free miners trapped un-
derground, the
Mr. Fanoe's work could
have a critical bearing
on the outcome," he
said.

He hoped the award
would encourage others
to come forward with
schemes to improve
safety levels, mining
methods or equipment
involved in mining.

Mr. "Mac" van der
Merwe, manager of the
Witbank college, said
Frank's inventions
were extremely valu-
able. "This steel casing
invention may reduce
the time it takes to get
to the trapped miner.
It could prove to be
five to ten times faster
than using the normal
method."

But to Frank the
drama of trouble un-
derground is all in a
day's work. "It's just a
job. As long as you do
your best and have a
feeling for your work
— that's all that mat-

Mr Frank Fanoe and a section of the steel casing he designed to enable the mine rescue unit to reach trapped miners more quickly.
Bravery in the bowels of the earth

Mail Report

SEVEN Carletonville miners and a mine doctor yesterday received one of the country's highest awards for bravery after saving the life of a critically injured colleague at the West Driefontein Mine in July.

The men, Dr J P Lowe, Messrs J W Hennings, A Chavanana, R Ngweta, M Nhloniyama, P Shakhane, M Khuphsa and S Ngcebebe, were awarded the Chamber of Mines' award for outstanding bravery by the Chamber's president, Mr W W Malan.

● Report — Page 7
JOHANNESBURG — Nineteen men were killed, four critically injured and six were missing presumed dead after two separate mine accidents in the Transvaal today. The accidents occurred at the Vaal Reef and Ermelo mines.

A spokesman for Vaal Reef said last night that the death toll there had risen from seven to eight and six men were missing.

The rock burst registered 4.3 on the Richter scale on the 71st level which is more than 2,000m underground.

The cause of the Ermelo explosion, 130m below surface, was not known. The General Mining Group announcement yesterday said the affected area had been closed off but the accident would not affect production in other parts of the mine.

A Chamber of Mines spokesman here said the South African gold and coal mining industry had concentrated on safety measures in the past few years and introduced the International Mine Safety Rating Scheme.

The scheme rated mines from one to five stars by reflecting the effort put into safety. Accidents and fatalities were "significantly lower" at those mines with three, four or five stars.

The fatality rate of the Republic's gold mines for the first six months of this year — at 1.30 deaths a 1,000 employees — was the lowest ever, the spokesman said.

The fatality rate for coal mines for the same period was 0.63 a 1,000, he said.

The spokesman gave comparative figures for the American coal-mining industry. Preliminary figures released in May last year were 0.73 for every 1,000 employees. They were the most recent figures available.

The spokesman said the figures for South Africa were "encouraging", particularly as mines were getting deeper and the numbers of employees was increasing — Sapa
new influx Bill

Assoccom Rejects

The section of the mining

in coal mining tragedies

by David Carr

November 13, 1982

Price $2.00 (incl. tax)
Four miners die in Rockburst

Mail Reporter

Four men were killed in a rockburst on the 41st level of the President Brand Gold Mine No 3 shaft, near Welkom in the Free State, last night.

A spokesman for Anglo American Corporation said the names of the dead men were being withheld until their next of kin had been informed.

A list of mine disasters in which men have been killed — compiled from Press reports — brings this year's total to 116. This includes the latest deaths in Welkom.
A man was killed and five injured—four seriously—in a mystery explosion at Randfontein Gold Mine yesterday. A police spokesman said that a group of black mineworkers were going off duty at the No. 1 Cooke shaft at the mine. It is understood that one of them tossed an unknown object into a waste bin.

There was an immediate explosion during which the man believed to have tossed the object was killed, and the others injured. The injured were admitted to the mine hospital. Mint authorities are investigating.
**Mines in darkness after explosion**

JOHANNESBURG — Two miners on the gold-producing West Rand were plunged into darkness last night after an explosion at a nearby electrical sub-station.

A mine spokesman said today the underground night shift was unable to work for two hours while the power was out.

An Escom spokesman said the explosion, which cut power to the Randfontein and the West Rand Consolidated Gold Mine, destroyed a transformer between Randfontein and Krugersdorp and damage was estimated at R200,000.

Initial fears that an undisclosed number of miners had been trapped underground later proved unfounded, said the mine spokesman.

"The power cut disrupted the normal night shift and the men were trapped in the sense that they could not get to the surface while there was no power," he said.

"But no one had been trapped in the lifts and the shift was completed after power was restored."

A police spokesman said sabotage was not suspected.

"A transformer overheated and short-circuited and set others alight," he said — Sapa