

Spring greetings to you all in the Southern Cape! It seems just the other day that the last newsletter was sent out, this quarter has gone by so quickly.

During a visit to the UK, some interesting insights were obtained into the energy supply issues facing them, and these are shared with you in an article on page 5. Looking at their costs of fuel, domestic electricity and gas, one can only be grateful that our tariffs here are so much more affordable!

Coming through OT airport in Johannesburg, some time was spent in the domestic departure lounge, where the restaurant sported new dual-standard socket outlets, having both the old 15A three-pin and the new standard outlet being introduced. No doubt we shall see a lot more of these in future.



It is good to report that the Southern Cape Centre has shown modest growth with a few new members joining us, so a very special welcome to them, and we trust they will enjoy their SAIEE activities in this region. Membership is now 72 members.

Our regular events included the Bernard Price Memorial Lecture series, which are always World Standard! During a recent meeting, our President charged this Centre with the task of leveraging the immense pool of knowledge and expertise in our local membership, to the benefit of society generally, and this is being spearheaded by our vice-chairman, Mario Barbolini. Your inputs in this challenging assignment will be sincerely appreciated.

News from SAIEE House is that the planned establishment of a Telecommunications Section has been put on hold, pending further consideration and liaison with the membership for further

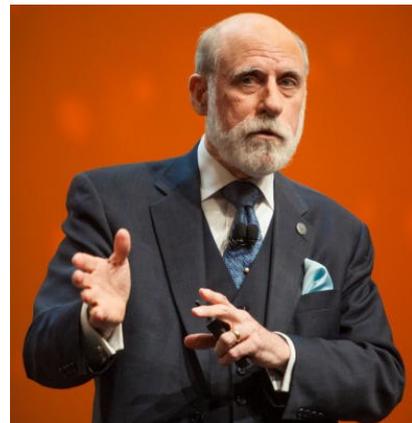
clarity.

On the IT front, MWeb has announced the sale of their MWeb business as a going concern to Internet Solutions (IS), and the launch of a new company, Wireless Co, with IS and Multi-Choice as shareholders, which will house their WiFi business.

There are some exciting SCC events pencilled in for the next few months, so watch out for those notices as they are firmed up. Also, please drop us a line if you think of any event which will benefit our Southern Cape members.

Les (leszelia@iafrica.com)

The Internet Past, Present & Future by Vint Cerf



The 62<sup>nd</sup> Bernard Price Memorial Lecture was only screened in the Southern Cape on 7 August as the speaker was unable to include George in his tour to South Africa last year. A good quality copy of his presentation in Johannesburg was, however,



It all started with ARPANET in 1969

obtained and this excellent talk was thoroughly enjoyed by the attendees. Vint Cerf is called the Fathjer of the Internet, and is entitled Chief Internet Evangelist, Google. He outlined the origins of the internet, from 1969 basic 3-network test, to the amazing network we know

today, with its ever-increasing speed and service demands.

It now links up around 500 000 networks, almost a billion subscribers, and perhaps 3 billion users! This is expanding even further with the proliferation of mobile devices.

One of the biggest challenges

in recent times is the matter of social consequences of such a transparent system, and the regulations and disciplines associated.

The talk included a fascinating discussion on future development and applications, including a possible role in interplanetary exploration and communication.

63<sup>rd</sup> Bernard Price Memorial Lecture : 16<sup>th</sup> September

The presenter, Prof Ian Jandrell of Wits University, was introduced by our SAIEE president, Dr Pat Naidoo, who paid tribute to Bernard Price, and briefly outlined aspects of his history and career. He mentioned that Bernard Price was president on the Institute in 1915, and was made an Honorary Life Member in 1940.



Guest speaker Ian Jandrell at the back with local members and visitors, including SAIEE President and Imm Past President, attending the 63<sup>rd</sup> Bernard Price Memorial Lecture

Prof Jandrell then proceeded with a truly outstanding presentation on lightning, entitled **"Excitation, Ionisation, and the Big Bang Theory"**, discussing the beautiful, frightening, exciting but not well understood phenomenon of Lightning.

He traced the long history of lightning research in South Africa, which is something of a world leader in this regard, and highlighted some of the latest findings as well as new directions of analysis being explored. This has clearly evolved into a multidisciplinary task, involving specialists in disciplines sometimes far removed from engineering.

There was also a discussion on the protection systems and safety measures needed to mitigate the effects of lightning. It was stressed that a Lightning Safety Plan should include not only these measures and devices, but also human behaviour during a storm.

The presentation was well illustrated with video images, and ended with enthusiastic ap-



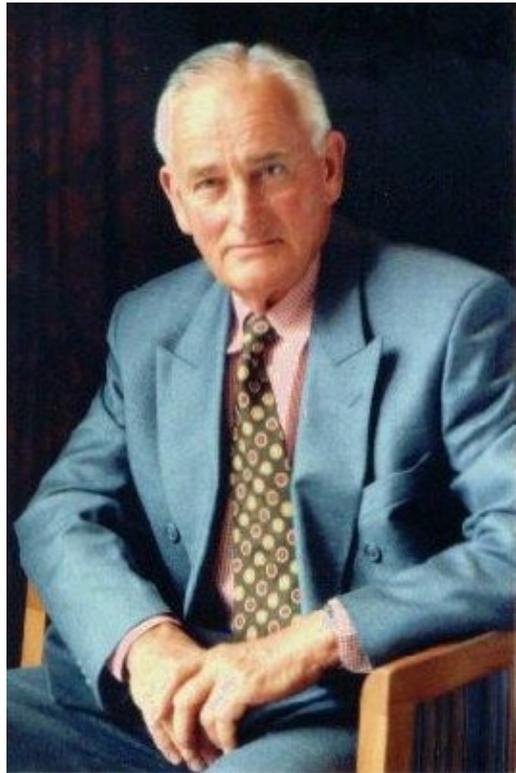
Prof. Ian Jandrell

plause from an appreciative audience.

#### Gus Gregory - A Career Description

When I started work after leaving school, I joined the SA Post Office, and for five years was an apprentice Telephone and Telegraph Electrician. There were about 30 youngsters in our group and we received theoretical and practical training, before being given a job to be done on the plant for which we had been selected, which in my case was Automatic Telephones. My comment of the apprenticeship, is that I am very grateful for the training we received at that time, and as it was shortly after the war, the SA Government were endeavouring to train technical personnel. I remained with the PO for 6 years, leaving them to join Aberdare Cables, who had just moved a cable factory from South Wales to Port Elizabeth where I lived. They established a telephone cable manufacturing plant and I started the Test Department. During this period, I received experience in the operation of the factory, which gave me the thought that if in the future I again worked in a factory, I must own it. Hence I have never worked in a factory again, not having owned one.

I decided that I must get out of light current engineering, as at that time the work in that field was carried out by State owned authorities, hence I moved over



to Power Engineering. I then applied for a post advertised by the Port Elizabeth Municipality, for a Protection Engineer in their Electricity Distribution Division, which I was successful in obtaining. This proved to be a good move as the Department was growing, and what I appreciated was that this division was run by a man who wanted his engineering staff to be capable and able to operate test equipment, for example, without having a separate division to be brought in to carry out the work. This is adequate when there is not too much demand for the service, however when the demand grows, a separate Test Dept. should be established. Not having a specialist department suited me, as it meant I was able to get more experience in the technical operation of the work.

After working for three years with the PE Electricity Dept,

which was in 1958, I decided that as there was a depression in SA, I would investigate what was happening in other states of Africa, and had a look at Kenya and Rhodesia. At the time the latter country was thriving and the Kariba Dam was being built to generate power for the then Federation of Rhodesia and Nyasaland. I decided that I must get a job at Kariba without being a construction worker; however this **wasn't easy as the engineering** staff were taken on in England. At the time there was restriction

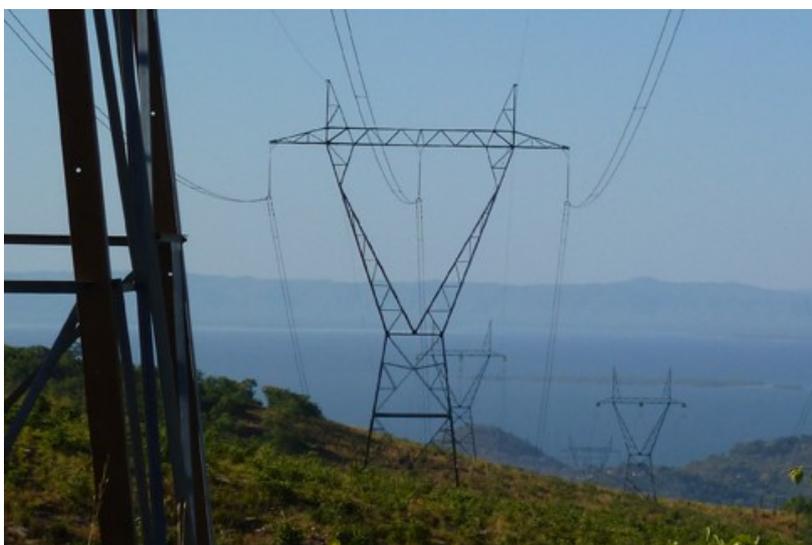


Kariba Dam Thermal Power Station

on immigration of people to Rhodesia. However, trained staff were accepted and as luck would have it, the Rhodesian Railways were looking for signal and telegraph engineers, and when I applied they sent me a train ticket, and asked me to come up to Bulawayo. There I had an interview and they offered me a job, which I turned down, but I had a return ticket. I had a number of contacts in Rhodesia and went around Bulawayo and Salisbury looking for a position, however the employer was not allowed to offer

the position, and I had to apply from outside Rhodesia, hence I felt that if I was there it meant a better chance of landing an engineering job in Kariba. I therefore applied for a job in the Distribution Dept of the Bulawayo municipal power station, which I obtained. While there I applied for engineering jobs at Kariba, without success, but fortunately, out of the blue I received a phone call from Salisbury, requesting me to come for an interview for a Protection Engineer at Kariba. At last I got there, starting work in

January 1960. The Kariba system was run by the Federal Power Board and the power station was planned to consist of six 100 MW turbo-generators which would feed power North to Kitwe in Northern Rhodesia (now known as Zambia), and south to Bulawayo in Southern Rhodesia. In 1960 there was one generator operational in the underground power station, together with the 330 kV overhead lines to Kitwe via Lusaka, the lines going south from Kariba were still being constructed. An interesting point is that one 100 MW generator was not capable of energising the **line to Kitwe, so the generator's** speed was reduced sufficiently to allow the line to be energised, after which the generator's speed was brought up slowly until the power was at 50 cycles per second. It was important not to lose the connection; otherwise the system of energisation had to be repeated. When two generators were available the line to Kitwe could be energised by closing the 330 kV circuit breaker on



Kariba 330 kV line

the Lusaka line. When the work had been completed for installing all the equipment, a Control Centre was established at Sherwood, which was located just south of Que Que, where there already was a thermal power station of the Rhodesian Electricity Supply Commission. From the Control Centre the remote operation of the transmission system and the inter-connected coal-fired generating stations could be carried out. All remote indication and communication was by power line carrier equipment.

Personally I was Assistant Protection Engineer on the system at Kariba and North and was involved in the commissioning of new plant. One of the tests that were carried out was to do fault throwing, which was to create a fault on the overhead line to see what reading we got on the fault location equipment. This was quite spectacular, as an arrow was shot over the line at a tower, trailing behind it a fishing line with a fuse wire which was connected to a peg in the ground. This was controlled by a Linesman situated some 20 m away, and when the fuse wire approached the live 330 kV conductor, there was a huge flash down to the earth spike and the dry veld grass burst into flames, and the air shimmered as it was blown across at right angle to the path of the line, the line tripped switching off the power, then the auto-reclose operated and the line was re-energised. Most impressive!

I remained at Kariba for 10 years, resigned from the Central African Power Corporation, which had been the Federal Power Board as the Federation had been dissolved, and moved to Sinoia, south of Kariba, where I had purchased a 2 000 acre farm and went farming and doing electrical contracting, for a further 10 years, finally leaving Rhodesia in 1979, and returning to SA. After my return I worked for a further 10 years as a contracting engineer at SASOL 2 and 3, and Secunda.

#### Keeping the Lights On in the UK

Having recently returned from a couple of months in the UK, I find it interesting that they face much the same threat as we do as regards rolling power blackouts this winter. Their plant margin of 20% a decade ago was down to 4% last winter, and generating capacity is set to drop further.

Two nuclear power stations shut recently due to technical faults. Six coal powered stations, representing over 30% of capacity, are to close by 2020 to meet EU emission reduction targets. Most of the nuclear power stations are aging, with nine, representing 15% of capacity, due to close by 2030, while only one replacement is on the cards, but with progress suspended by EU scrutiny of the proposed contract.

At the same time, North Sea gas supplies are dwindling, and import opportunities are mainly

from unstable regions, making them expensive and possibly unreliable.

Already the National Grid has offered to pay major consumers to turn off their machines on weekday afternoons to avoid power blackouts. While Wind and PV generation is heavily subsidised, these do little to secure base load security. And with fracking facing huge public resistance, the future looks bleak indeed!

### Upcoming Events

Jeffreys Bay Wind Farm  
17 November



Bookings closed with 14 members booking their visit to the Wind Farm.

SALT Instrumentation & IT  
21 November 16:30



Lecture by Dr Hamish Wittal & Colleague to be held in George. Notice to members will be circulated once final details are firmed up.

Southern Cape Centre Committee: 2014/15

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