The South African Institute of Electrical Engineers

69TH BERNARD PRICE MEMORIAL LECTURE WEBINAR

"LEAVING A LEGACY"

08 October 2020 | 18h00

PRESENTED BY | ROGER PRICE

THE BERNARD PRICE MEMORIAL LECTURE

JOINT MEETING BETWEEN THE INSTITUTE AND THE UNIVERSITY OF THE WITWATERSRAND

These lectures are named after the late Dr Bernard Price because of his outstanding contribution as an engineer to the power supply industry in South Africa as a President of the Institute and as the founder of the Bernard Price Institutes of Geophysical Research and Palaeontology at the University of the Witwatersrand.

On behalf of the University of the Witwatersrand and the South African Institute of Electrical Engineers, we extend a hearty welcome to our members and friends in attending this important annual event, by being present, to pay tribute to the engineers, past and present. They have so significantly contributed to the course of technical excellence in this country.

DR. BERNARD PRICE

ENGINEER | SCIENTIST | PIONEER

PROGRAMME

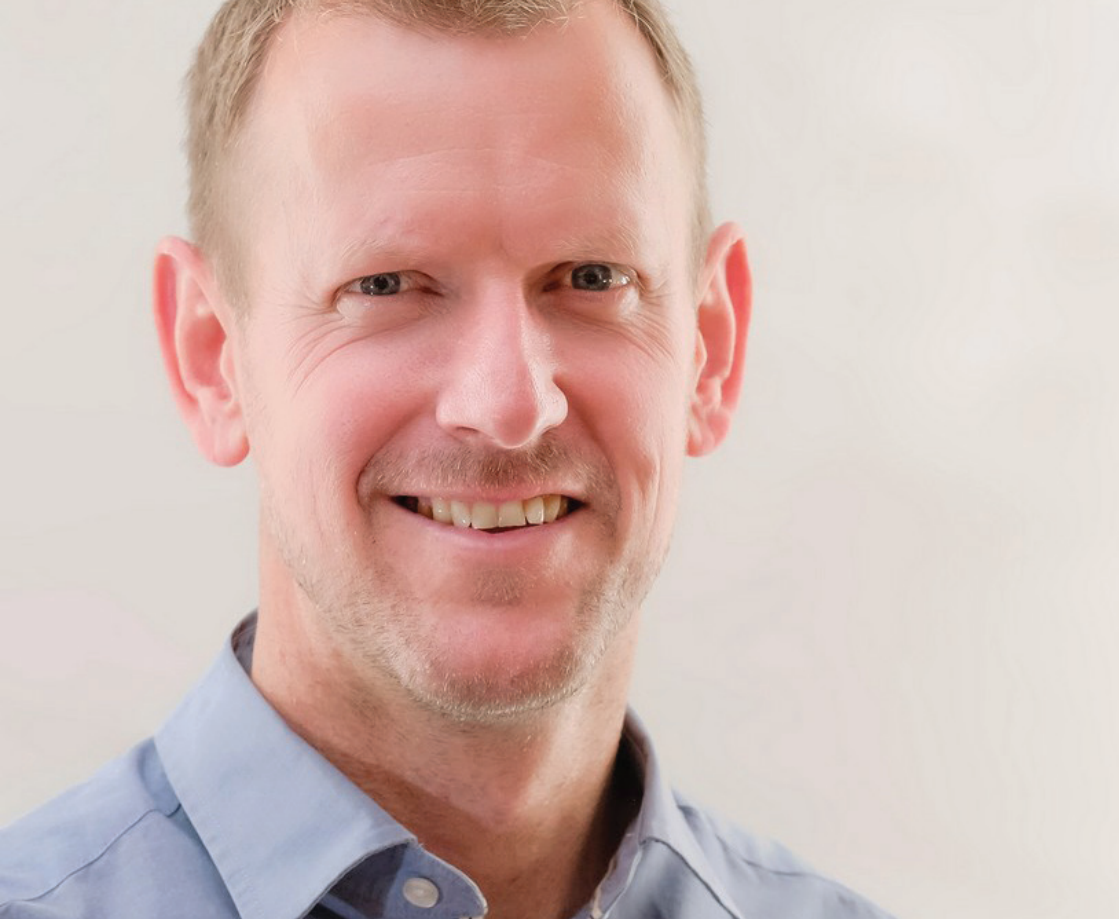
1. WELCOME
   PROFESSOR ESTELLE TRENGOVE
   HEAD OF SCHOOL: SCHOOL OF ELECTRICAL AND INFORMATION ENGINEERING
   WITS

2. WELCOME
   SY GOURRAH – SAIEE PRESIDENT

3. PRESENTATION
   ROGER PRICE

4. VOTE OF THANKS
   PROF SUNIL MAHARAJ – SAIEE DEPUTY PRESIDENT

5. CLOSING
   SY GOURRAH – SAIEE PRESIDENT



ROGER PETER BERNARD PRICE

PRENG, BSC ENG, (ELEC), MENG, MSAIEE, MIET

BIOGRAPHY

Roger grew up in Rustenburg under the shadow of the Magaliesberg mountains and at the start of Highschool moved to Johannesburg where he completed his studies at WITS University.

He started his Career working for AngloGold Ashanti on the Deep Level Gold Mines of Orkney and Carletonville and in 2005 he moved into Consulting with DRA Mineral Projects and progressed to the position of Senior EC&I Engineer, working on Mineral Processing plant projects in South Africa Zimbabwe & the DRC.

In 2015 he Emigrated to the UK and is working as a Responsible Engineer on Sellafield – one of the oldest Nuclear Decommissioning Sites in the World.

His qualifications include a Bachelor of Science Degree in Electrical Engineering, a Master's Degree in Engineering (Project Management) and a Government Certificate of Competency.

LEAVING A LEGACY

BY ROGER PETER BERNARD PRICE

What we leave behind for those that follow is more important now, than ever before. What is our legacy?

Join me as I examine two very different types of legacies.

As the great grandson of Dr. Bernard Price I will be reflecting on his life, the contributions he made and the legacy that he left behind.

Moving from the past to the present - my current work environment at Sellafield Nuclear Decommissioning Site provides an example of a completely different type of legacy. Looking back on its impressive history, we will discover how parts of it came to be seen as an “intolerable risk” for the British people and a legacy requiring careful management into the future.

These examples of engineering development should direct our thinking and the contributions we make to society, to ensure that the legacy we leave our great grandchildren, is one they can be proud of.

THE FIRST JOINT MEETING : 1931

The year 1931 marked the centenary of the discovery of electromagnetic induction by Michael Faraday. To commemorate the occasion, the Council of the Institute and the University of the Witwatersrand agreed to hold a Joint Meeting of both bodies. The fact that the Professor of Electrical Engineering at the time, Professor O R Randall, was also a Vice President of the institute is likely to have been a key factor in the decision.

The meeting took place on 27 August 1931 in what was then the large lecture theatre of the Chemistry and Physics Building of the University. In his introductory remarks the President, Mr M Jacobs said : "It is fitting that electrical engineers should join with the University, with the more scientific side let me say, in celebrating this centenary. On behalf of the South African Institute of Electrical Engineers, I would like to convey to your Council through you, Mr Raikes (the Principal of the University) the appreciation of my Institute for your hospitality and your co operation in these proceedings."
As well as the lecture, an exhibition illustrating Faraday's work and the consequences which flowed from it, was staged in the Department of Physics and electrical Engineering of the University.
The meeting was so successful that it was decided that similar joint meetings be held annually and so they have ever since. The lecturer is chosen by the Council of the Institute and he is invited to present the address. Many prominent engineers and scientists, both from this country and from overseas, have participated.

THE FIRST BERNARD PRICE MEMORIAL LECTURE : 1951

Dr Bernard Price was born in London in 1877, was President of the Institute in 1915, and was elected an Honorary Fellow in 1940. He was well known as the Chief Engineer and General Manager of the Victoria Falls & Transvaal Power Co. As a young man he worked for Merz & McLellan and at that time developed the well known Merz Price method of power circuit protection. Under his guidance the VFP expanded its electrical system and also developed a compressed air system, reticulating compressed air to the mines from Rose Deep to Crown mines by means of pipelines having a total length of about 50km and a maximum diameter of 700mm. In all, the system required 85 000kW to drive it and was unique in the world.

Dr Bernard Price was instrumental in the formation and endowment of both the Bernard Price Institute of Geophysical Research, and the Bernard Price Institute of Palaeontology at the University of the Witwatersrand. He died in 1948. To commemorate his name, the Institute's Council decided that in future there should be an annual lecture to be known as the Bernard Price Memorial lecture and, because of his association with the University, this lecture should be presented at the Joint Meeting. The first lecture (at the twenty first Joint Meeting on 26 July 1951) was presented by Dr B F J Schonland (later Sir Basil Schonland) who addressed the gathering on the work of the Bernard Price Institute of Geophysical Research. In opening the meeting, the President of the Institute, Mr A W Lineker paid tribute to Dr Price. The Principal of the University, Dr H R Raikes, after expressing pleasure at having attended all twenty one of the Joint Meetings, said "A special reason for pleasure is that this is the occasion of the first Bernard Price Memorial Lecture in commemoration of a man who had served his country in a most remarkable way and in particular had been of great assistance to the University of the Witwatersrand. Dr Bernard Price was a great son of South Africa; he was not born here but came here to devote the best years of his life to this country. The lecture to be given is about the work which he made possible but it is only one example of his work, and this meeting is to commemorate a very great scientist who developed the electrical industry in the Transvaal."

THE VISITING LECTURER SCHEME : 1960

The success of these meetings led the Institute's Council to establish in 1959 a Visiting Lecturer's Fund. At the tenth Bernard Price Memorial Lecture, held in 1960, the President, Professor W Cormack, paid tribute to the previous year's President, Mr R Gettliffe, for establishing this fund and said :
"One of the proposals made by our last President, Mr R Gettliffe, was that the Institute should be in a financial position to invite prominent people from overseas as visiting lecturers to this country, to deliver the Bernard Price Memorial Lecture. Now, Mr Gettliffe not only suggested the idea of a fund but he worked for its practical realisation until, with the help of the Chamber of Mines and De Beers Consolidated Mines Ltd, he was able to bring it into being."

Owing to the foresight of Mr Rupert Gettliffe, the Fund has made it possible for the Bernard Price Memorial lecturer also to address members of the Institute's local centres in Cape Town and Durban and the engineering fraternity in Port Elizabeth and East London, and to visit the Electrical and Electronic Engineering Departments of South African Universities to address staff and senior students. This pattern has continued to the present day, thanks to this Fund to which many members of the Institute contribute annually.

JOINT MEETINGS

1931 Prof H H Paine, Michael Faraday – his life and work.
A M Jacobs. Some practical applications of the principals of electromagnetic induction.
1932 Prof H H Paine. What is electricity?
1933 Dr B F J Schonland. The development of the lightning discharge.
1934 Prof H Stephen. Contemporary advances in sub-atomic chemistry.
1935 Prof J D Dalton. On Resonance.
1936 Prof H R Raikes. Ions and the conduction of electricity.
1937 Prof B F J Schonland. The Lightning discharge.
1938 Dr H F van der Bijl. A brief sketch of the development of radio telephony
1939 Prof W J Walker. A summary and discussion on some modern problems in internal combustion engineering.
1940 Dr E B Woolf. Electricity in medicine.
1941 A M Jacobs. The development of electrical power in the Union of South Africa.
1942 B Morison. Electrical applications in aircraft.
1943 Dr A E H Bleksley. Some engineering aspects of nuclear physics.
1944 Major G R Bozzoli. An introduction to radio location.
1945 H S H Donald. The Stet and the Gold Mines. A review of a partnership.
1946 Prof H Clark. Transmission line phenomena at audio and radio frequencies.
1947 Dr W Cormack. Wave-form in electrical engineering.
1948 Dr G R Bozzoli. Sound, noise and acoustics.
1949 Dr A W H Bleksley. Nuclear Energy.
1950 B L Goodlet. The Universities and the Engineering World.

BERNARD PRICE MEMORIAL LECTURES

1.	1951	Dr B F J Schonland. The work of the Bernard Price Institute of Geophysical Research.
2.	1952	A M Jacobs. The work and training of the Engineer.
3.	1953	Dr H J Van Eck. Secondary Industry in South Africa.
4.	1954	Prof J M Meek. High voltage spark discharges.
5.	1955	Prof F R N Nabarrow. The modern atomic approach to the mechanical properties of solids.
6.	1956	Dr A L Hales. The interior of the earth.
7.	1957	Prof P G Game/ Airborne geophysical prospecting.
8.	1958	Dr Colin Cherry. The conceivable future of telecommunications.
9.	1959	Dr T E Allibone. Fission and Fusion.
10.	1960	Prof M G Say. Energy.
11.	1961	Sir Willis Jackson. Science and Electrical Engineering Partners in Progress.
12.	1963	W R Stevens. Light and Living.
13.	1964	Dr W H Pickering. The guidance of interplanetary spacecraft.
14.	1965	Prof G H Rawcliffe. People, principals and progress in electrical engineering.
15.	1966	Sir Harold Bishop. Observations on some aspects of British electrical engineering.
16.	1967	Dr Eric Eastwood. `Control' and its significance for the modern world.
17.	1968	F J Lane. Power transmission and the constraints of society.
18.	1969	A H Reeves. The future of telecommunications.
19.	1970	Andrew R Cooper. Technological progress and its impact on society.
20.	1971	Dr H L Haslegrave. The evolution of education and training for engineering in a changing environment.
21.	1972	W J Bray. Evolutionary telecommunications and ecological man.
22.	1973	R Noser. Materials and rotating electrical machines today and tomorrow.
23.	1974	Prof Dr Ing D Kind. Gas insulated energy transmission systems.
24.	1975	Dr L K Kirchmayer. Modern computational tools aid power system planning and operations.
25.	1976	Dr S Jones. CBE. Technology in ground transport.
26.	1977	J Johnson. Environmental standards and their implications in power utility engineering.
27.	1978	Maj Gen T G E Cockbain. Radar development in South Africa with special reference to air defence.
28.	1979	A R Hileman. Transmission line insulation design.
29.	1980	Sir James Redmond. Broadcasting technology for the 80's.
30.	1981	L M Muntzing. Nuclear Power an emerging answer to energy and economical problems.

BERNARD PRICE MEMORIAL LECTURES (cont.)

31.	1982	K F Raby. Electrical machines in an electronic world.
32.	1983	Prof Dr Ing R Isermann. The role of digital control in engineering.
33.	1984	M N John. Electrical energy for developing systems.
34.	1985	Dr J W L de Villiers. Energy for future generations.
35.	1986	Dr D H Roberts. Electrons, photons and phonons the physical particles of modern electronics.
36.	1987	Prof Dr Ing Wolfram Boeck. Twenty years gas insulated substations.
37.	1988	Dr Karl Gehring. The role of superconductors in electrical and electronic engineering.
38.	1989	Dr Leonard A Sagan, M.D. Health effects of exposure to electric and magnetic fields : the view from the United States.
39.	1990	Dipl. Ing. GKF Heyner. Magnetic levitation and linear motor drive : the innovative technology to solve transportation problems
40.	1991	P S Blythin. Energy management principals and practice.
41.	1992	Dr P M Neches. Technology leadership in the 1990's.
42.	1993	Dr P Radley. Telecommunications : a glance back, a glimpse ahead, and "what's all this technology for anyway?"
43.	1994	P R Rosen. Power under control.
44.	1995	Dr F P Sioshansi. Global change in electrical regulation and competition : the International Learning Experience.
45.	1996	Dr J Taylor. The emerging information infrastructure : getting ready for tomorrow's world.
46.	1997	M Chamia. Electric power transmission : meeting the challenges with technology.
47.	1998	C Gellings. The year 2000 and the electricity industry embedded systems : challenges and opportunities for customers.
48.	1999	Dr M W Kennedy. Communicating Knowledge in the real world
49.	2000	Prof J E Midwinter. Something old, something new & something just in time - dilemmas for EE education and training!
50.	2001	Prof Pragasen (Prag) Pillay. University/Industry collaboration - Case studies in energy efficiency and power quality.
51.	2002	Prof P Bayvel – Using Wavelength of Light in Routing of Data in the Networks of Tomorrow.
52.	2003	Case Rijsdijk – Fingerprinting the Universe with SALT (South Africa's Large Telescope)
53.	2004	Prof Frank Larkins, "Synchrotron Science with light brighter than the Sun".
54.	2005	Prof Igor Aleksander – "The Engineer in Search of the Mind"

BERNARD PRICE MEMORIAL LECTURES (cont.)

55.	2006	Prof Kevin Warwick – "Re-Engineering Humans – Mental Therapy & Enhancements via Implants"
56.	2007	Caris A (Skip) Hatfield – "NASA's Vision for Space Exploration – The Next Generation of Human Spaceflight"
57.	2008	Prof. Dr. Sami K Solanki – "Exploring our Fiery Star, the Sun"
58.	2009	Prof. William A. Gruver – "New Technologies of Intelligent Systems for a Global World"
59.	2010	Dr Glenn Ricart – "The Past and Future of the Internet"
60.	2011	Philippe Paelinck – Carbon Capture and Storage: Ready to Deliver?"
61.	2012	Nicholas Frydas – "Integrating Renewables in the Power System of Tomorrow: Definitely not Business as Usual"
62.	2013	Vint Cerf – "Re-Imagining the Internet in the 21st Century"
63.	2014	Prof Ian Jandrell- Excitation, Ionisation and the Big Bang theory – A Disastrous history of lightning research in South Africa
64.	2015	Prof Saurabh Sinha – "Sustainable Engineering Education"
65.	2016	Prof Tshilidzi Marwala – The Fourth Industrial Revolution: Artificial Intelligence and Society"
66	2017	Prof Fulufhelo Nelwamondo - "Redressing Structural and Systemic Bias in Modern-Day Automated Solutions"
67	2018	Prof Ian Craig - "Automatic Control: The Hidden Technology that Modern Society cannot live without"
68	2019	Prof Robert (Bob) Metcalfe – "Connectivity"