

Presentation of the 1998 Ian Donald Gold Medals



Presentation of the 1998 Ian Donald Gold Medal to Sturla Eik-Nes by Mrs Alix Donald



Eulogy to Professor Peter Wells, winner of the 1998 Ian Donald Award for Technical Merit, by John Fleming

Presentation of the 1998 Ian Donald Gold Medal to Sturla Eik-Nes

It is a great honor for me to introduce the 1998 winner of the Ian Donald Gold Medal, my close friend, Professor Sturla Eik-Nes, Director of the National Center for Fetal Medicine and Professor at the Department of Obstetrics and Gynecology, University of Trondheim, Norway. By his pioneering research in several fields of diagnostic ultrasound and by his enthusiastic work in teaching and organization of research and clinical activities, Sturla Eik-Nes has contributed significantly to the development of obstetric and gynecological ultrasound during the past 20 years.

Professor Eik-Nes was already interested in diagnostic ultrasound during his undergraduate studies in Münster, Germany, where Professor Holländer was one of his teachers. Later, as resident in obstetrics and gynecology in Norway, Sturla started research in fetal biometry. In the late 1970s, I had the pleasure of working for a couple of years with Sturla in Malmö, Sweden. His research resulted in a PhD thesis on 'Ultrasound assessment of fetal weight, growth and blood flow'. Sturla Eik-Nes was the first to show that it is possible to estimate fetal aortic blood flow using a method, designed by him, in which the real-time B-mode linear array and pulsed wave Doppler ultrasound are combined. In 1980, Sturla successfully defended his academic thesis at the University of Lund – the Faculty Opponent at this public dissertation was Professor Stuart Campbell.

For the post-doc period, Sturla Eik-Nes moved to Stanford University in the United States where he participated in the very early research on three-dimensional ultrasound. Back home in Norway, he became professor at the University of Trondheim in 1985. In Norway, he has conducted two randomized studies on the routine use of ultrasound in pregnancy and has demonstrated the advantages of the organized and systematic application of obstetric ultrasound. This led to a consensus and recommendation by the Norwegian Parliament to offer an ultrasound examination to all pregnant women in Norway.

In Trondheim, Professor Eik-Nes has built up a National Center for Fetal Medicine and has established a strong research group, internationally known for studies into the safety of ultrasound, diagnosis of fetal malformations, fetal Doppler studies, early pregnancy assessment and three-dimensional ultrasound. His group has clearly shown how important it is to centralize fetal medicine. The Trondheim concept has been adopted as a model for the organization of obstetric ultrasound in many centers abroad.

Professor Eik-Nes has always been very active in promoting research and the proper use of ultrasound, both on the national and international level. He has held several prestigious positions as a President of the Norwegian Ultrasound Society, President of the Norwegian Society of

Perinatal Medicine and President of the European Federation of Societies of Ultrasound in Medicine and Biology (EFSUMB). Indeed, his active presidency has led to a renaissance of EFSUMB. Tonight, he succeeded Professor Campbell as the President of ISUOG. I am convinced that, under his leadership, our Society will continue to be the successful, open and very active society it has always been.

Sturla Eik-Nes is known as an excellent speaker and teacher. He realized very early the practically never-ending need for education in ultrasound diagnosis. It is hardly possible to count all the courses in obstetric and gynecologic ultrasound that Sturla has organized or participated in as a teacher – in Norway, Scandinavia and worldwide. He is responsible, both in ISUOG and EFSUMB, for the so-called ‘out-reach’ activities aimed at the countries beginning to introduce ultrasound on a larger scale, such as countries in Asia and former Eastern Europe.

Even when travelling frequently all over the world, Sturla’s heart is always in his home country Norway, with its beautiful countryside, mountains and fjords. Despite all the honors and official positions, Sturla remains the Norwegian ‘gutt’, as they say in Norway. His dynamic and enthusiastic manner is very contagious and he is always prepared to show his famous smile and give encouragement to all colleagues and friends. Especially, young researchers are very close to his heart.

Ladies and gentlemen, I hope that my attempt, however incomplete it may be, to review Professor Eik-Nes’ contribution to the development of obstetric and gynecological ultrasound shows that the Nomination Committee could not have made a better choice when it awarded Professor Eik-Nes the Ian Donald Gold Medal.

K. MARŠÁL

Presentation of the Ian Donald Medal for Technical Development to Peter N. T. Wells

I am very pleased to have been asked to say a few words about Peter Wells on this occasion. But, first, I should mention the previous recipients of this award. It has been presented to four people who have made tremendous contributions to the progress of medical ultrasound:

- Martin Wilcox, who designed and produced the earliest commercially available linear-array real-time scanners;
- Tom Brown, who designed the scanners used by Ian Donald;
- Klaas Bom, who pioneered the development of array transducers.

Peter Wells’ contribution is significant for its wide range, as I hope to describe in the next few paragraphs.

I have known Peter Wells since about 1963 when I was working as a junior development engineer for Tom Brown at Smiths. We were just starting to design the first commercial ultrasound scanners, the Disonograph (Figure 1). Peter, who had been working on the therapeutic applications of ultrasound, had recently started work on its use in diagnosis. He was, therefore, a potential customer who had to be visited in the hope that he might buy one of our one-ton monsters! After a number of enjoyable and interesting visits, we managed to persuade him to buy the electronics, i.e. about one-third of a Disonograph, to which he added his own design of scanning mechanism. Figure 2 shows the second unit that we delivered: the first was dropped in transit by British Rail – who paid out compensation based on its weight – which was then, after all, mostly scrap iron!

Right from the start, I admired Peter’s enthusiasm and energy. Soon I found that he was writing his first book, which he called *The Physical Principles of Ultrasonic Diagnosis*. I was even more impressed when he said the best time to write was in the early morning, from 6.00 to 8.00.



Figure 1 Disonograph in Smiths’ factory, Hillington, Glasgow c.1963

This book filled a gaping hole on the library shelves, between the highly mathematical, very academic treatments of sound and the vague, rather hopeful, descriptions of what might be. Peter’s clear practical down-to-earth text was a landmark on the medical ultrasound landscape.

So much for my personal reminiscences – I am here to give you a brief summary of Professor Wells’ career. This began in 1954 when he joined GEC in Coventry as a student apprentice and studied at the University of Aston. In 1958, he obtained a BSc in Electrical Engineering. Then, in 1959–60, a course in Medical Physics at Bristol University led to an appointment as a Basic Grade Physicist in Bristol General Hospital. The addition of an MSc in Physics with a thesis on ‘The production of controlled



Figure 2 Scanner designed by Peter Wells, 1963–65, using electronics from the Disonograph

ultrasound – with particular reference to Menière's disease' allowed him to reach Senior status. This was followed, in 1966, by a PhD in Zoology with a thesis entitled 'Some biological effects of ultrasound'. Then came an appointment as a Principal Physicist with consultant equivalent status.

In 1972, Peter was appointed Professor of Medical Physics at the Welsh National School of Medicine in Cardiff. After 2 years, he returned to Bristol as Area Physicist and, in 1978, he was awarded a DSc by Bristol University. Then in 1982 he became Chief Physicist at United Bristol Healthcare NHS Trust, the post he still holds. His department has a staff of approximately 100 with ultrasound being one of its important activities.

Over the time described so briefly by these few sentences, Peter Wells has turned his attention to the use of ultrasound in the treatment of Menière's disease, the building of the first articulated arm scanner (which I have already described), catheter-mounted probes (Figure 3), a water immersion automatic breast scanner, an echocardiography system, standardization, range gated Doppler, extraction of numerical information, review of biological effects and a study of possibility of hazard, study of characteristics of ultrasound imaging systems, swept focusing, techniques for the assessment of arterial disease, characteristics of Doppler signals from malignant tumors, volume flow measurement, and various contributions to Doppler.

Current ultrasound work in his department includes research into confocal acoustic microscopy, with the aim of examining infant lung tissue, and telepresence systems (the control of an ultrasound scanner by a remote operator).

His study and deep understanding of both therapeutic and diagnostic systems combined with an essentially practical view have enabled him to argue strongly for the prudent use of ultrasound, of particular importance in obstetrics and gynecology. Most significant here is his recognition of the 100 mW/cm^2 SPTA level below which a harmful effect has not been observed – a crude criterion perhaps, but one from which more refined approaches have developed.



Figure 3 Professor Peter Wells with an intravascular probe (1965/66)

The work on these many aspects, together with his work as an editor, has resulted in over 200 publications. This is too brief a statement to summarize the extent and value of this work but there is no way that I can do more in these few minutes. As a result of his wide experience and depth of knowledge, he was appointed in 1992 as Editor-in-Chief of the journal *Ultrasound in Medicine and Biology*.

Added to this, one must not overlook Peter's commitment to teaching. As examiner, he has read over 100 theses. He has lectured extensively in the UK (this is an understatement!) and in over 20 countries overseas. His lectures are clear and are delivered with enthusiasm, that ingredient which aids attention and understanding – they are in a word, and in my experience, a *delight*.

To summarize all this seems impossible. One of Peter's close colleagues described him to me as 'a sponge for ultrasound knowledge'; he absorbs it and then, when greatly squeezed, can pass it on with considerable insight and understanding.'

In addition, I have to say that one of the highlights of ultrasound meetings is meeting Peter again. On this occasion, I shall have to do without that pleasure and compensate by asking Professor Stuart Campbell to present The Ian Donald Award for Technical Merit to Professor Peter Wells whose work has done so much to further the science and application of ultrasound in all areas of medicine.

J. E. E. FLEMING