

# 1979 Nobel Prizes for Medicine, Physics, and Chemistry

## 35th prize for inventor of EMI X-ray scanner

"I'm not the sort of person to build model planes" said Godfrey Hounsfield, co-winner of this year's Nobel prize for medicine, last week. "I've always searched for original ideas; I am absolutely opposed to doing something someone else has done."

Dr Hounsfield invented the EMI 'brain scanner' for computerised tomography — using X-rays to make two-dimensional images of slices of a patient's brain. "It came to me on a ramble" he said. The device, and its successor, the whole body scanner, brought EMI medical division a ten-fold increase in profits from 1973 to 1977, when the US market collapsed from 40 scanners a month (at £250,000 each) to just eight (see following story).

To date, Dr Hounsfield has received 35 academic awards for his work on the scanner, beginning with the MacRobert Award (the UK's major prize for engineering) in 1972, a Fellowship of the Royal Society, a CBE and many foreign degrees, and ending with the Nobel. He hopes to use his £44,000 prize to buy scientific equipment for his home "so I have something to do when I retire".

Sixty years old and a bachelor, Dr Hounsfield hasn't much time for the arts. "Science has very much a 3rd place in this country; I'd like to do something about that. The sciences are far more exciting than the arts, than fantasy".

Farming educated Hounsfield. "I was brought up in the country; I played around with farm machinery, and to prevent myself being bored I started to reason why

things work".

EMI's central research laboratories have provided Hounsfield with "a very relaxed place to do original thinking; and there's just enough pressure to produce a product. It enables one to come to a logical conclusion rather quicker than one would in academic life".

Dr Hounsfield does not know his co-winner, Allan Cormack, and says he first heard of him when he was recommended as a referee for a paper in 1972-3. Cormack had taken a mathematical approach to computerised tomography, whereas, says Hounsfield "I find I've got other tools of thinking than maths — the most important thing is a very broad understanding of the problem, not to be fogged by detail".

"In the last few years I've spent half my time on developments of the scanner, half on other things" says Hounsfield. A new version, the '7000', will cut scan time from 18 to 3s, so reducing the effects of organ movement in the body. "I've always been interested in the heart; we are working on pictures synchronised to the heart to 'arrest' the heartbeat."

Dr Hounsfield has also been working on newer, non-invasive techniques, such as nuclear magnetic resonance. This "looks promising, but isn't diagnostically useful yet. But we've a long way to go before we reach a brick wall." Further developments of the scanner involve a system directly linked to a machine for delivering therapeutic X-rays, so the surgeon can see precisely where he is working. "We're well ahead on that".



Godfrey Hounsfield: started with farm machinery

"The scanner can save money if it's used properly" says Hounsfield. "It's said the head machines can pay for themselves in 2 years" by avoiding the need for exploratory surgery or dangerous techniques like pumping air into the ventricles or heavy metals into the veins of the brain, which are the more traditional techniques for revealing defects.

Nevertheless the profits of EMI medical electronics have fallen from £14.7m in 1977 to a loss of £12.8m this year, in part because of the spectacular collapse of the US market for the scanner. And meanwhile EMI has been fighting patent rights battles with three US manufacturers of scanners: Ohio Nuclear, which is now to work under an EMI licence, and Pfizer Inc., and GEC.

**Robert Walgate**

● A six-month tenure at the Groote Schuur hospital in Capetown gave Allan Cormack, a native South African, first-hand knowledge of the limitations of the X-ray techniques being used. "I saw these girls

### Dithering on the deadline

PROFESSOR Cormack and Dr Hounsfield became Nobel laureates after a controversy that prolonged the announcement of the prize by more than an hour. Until the last minute, it was unclear whether they or another group would share the award.

The rival nomination was reportedly for a group of three American and French scientists who have made crucial discoveries in immunogenetics. As a result of these discoveries, organ transplant have been made easier.

Exactly who these scientists are is not being revealed. But the Nobel committee, a group of 15 professors from the Karolinska Institute which goes through all the nominations and prepares a short-list, was so sure that the group would be approved that it had prepared its publicity material only on the immunogeneticists, in the usual

languages: Swedish, German, French and English.

When the committee presented its proposals to the Nobel Assembly for final decision, however, the Assembly — composed of the 64 full professors at the Karolinska Institute — argued in favour of Cormack and Hounsfield instead. After a prolonged discussion, the committee's secretary, Professor Jan Lindsten, left the deliberations to face the waiting journalists. He made the official announcement in Swedish only: the translations came later. "There was no time to check with the translators" he told *Nature* — and the foreign correspondents had to manage as best they could.

In voting for Cormack and Hounsfield, the Assembly decided to give the prize to applied instead of basic research. The relative merits of these was reportedly one of the subjects of the Assembly's discussion. The information secretary of the Royal Academy of

Sciences, Lennart Daleus, wondered afterwards how such a controversy could have arisen at the last minute. By the time the Academy's classes of physicists, chemists and economists present the full Academy with their proposals for the respective prizes, he mused, all the substantive disagreements have usually been ironed out.

Nominations for the medicine prize are invited from many sources. According to Professor Lindsten, invitations to nominate are sent to previous laureates, professors of Scandinavian faculties of medicine, and about 40 faculties of medicine in different parts of the world.

After the drama of the announcement, none of the Assembly's members was willing to talk about the controversy. The remark made by the Assembly's chairman, Professor Georg Klein, was typical of the others' tantalising restraint. "I have a lot of comments", he told *Nature*, "but I can't make them."

**Wendy Barnaby**