

Max Ferdinand Perutz 1914–2002

Max Ferdinand Perutz, who died on 6 February, will be remembered as one of the 20th century's scientific giants. Often referred to as the 'father of molecular biology', his work remains one of the foundations on which science is being built today.

Born in Vienna in 1914, Max was educated in the Theresianum, a grammar school originating from an earlier Officers' academy. His parents suggested that he study law to prepare for entering the family business, but he chose to study chemistry at the University of Vienna.

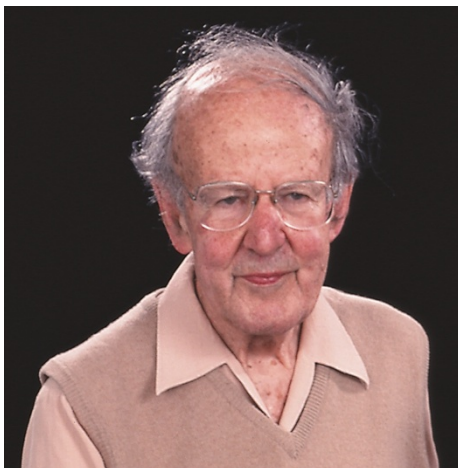
In 1936, with financial support from his father, he began a PhD at the Cavendish Laboratory in Cambridge. Using X-ray crystallography he aimed to determine the structure of hemoglobin. But the sheer size and complexity of the hemoglobin molecule was too much for the basic X-ray crystallography technique. Then in 1953, he introduced mercury into a crystal of hemoglobin and found that it produced slight changes in the intensities of all the diffraction spots. These changes could be used to find the missing phases for the Fourier components and thus solve the structure. The use of mercury or other heavy atoms to produce 'heavy atom derivatives' revolutionized the technique of X-ray crystallography and led to the determination of many protein structures. The first two protein structures determined, those of myoglobin by colleague John Kendrew and of hemoglobin by Max Perutz, garnered the 1962 Nobel Prize for Chemistry.

At the Cavendish Laboratory with John Kendrew and the support of Professor Lawrence Bragg, he built up the Medical Research Council (MRC) Unit for Molecular Biology, working on the molecular structure of biological systems. The unit grew from four people in 1950 to about 40 people by 1960. In 1962, the group merged with other laboratories from Cambridge and London to create the MRC Laboratory of Molecular Biology on the Hills Road site, now the Addenbrooke's Biomedical Campus. He became chairman of the new laboratory, a position he held until 1979 when he 'retired'.

The MRC Laboratory of Molecular Biology has since built an international reputation for excellence, having produced nine Nobel laureates since the 1950s, including James Watson and Francis Crick. When asked what makes creative research, Max would say "no politics, no committees, no referees, just talented highly motivated people."

Over the years, Max's ongoing work earned him the highest distinctions. He was elected a Fellow of the Royal Society in 1954, was awarded the CBE in 1963, became a Companion of Honor in 1975 and was appointed to the Order of Merit in 1988—at least one per decade.

In 'retirement', Max continued to work nearly every day



in the MRC Laboratory of Molecular Biology, which has grown to house over 400 people. He published over 100 papers and articles during his retirement. Once asked why he didn't retire at 65 he replied that he was tied up in some very interesting research at the time. Until the Friday before Christmas, he was active in the lab almost every day, submitting his last paper just a few days before then.

Max's scientific interests ranged far beyond medical research. As a sideline, he also worked on glaciers in his youth. He studied the transformation of snowflakes that fall on glaciers into the huge single ice crystals that make

up its bulk, and the relationship between the mechanical properties of ice measured in the laboratory and the mechanism of glacier flow.

Max had many interests outside science. He had a great love of music and was a talented and prolific writer of popular articles and book reviews, many published in *The New York Review of Books*. He also wrote a number of books, including *Is Science Necessary?* and collections of essays such as *I Wish I'd Made You Angry Earlier*. *Science is Not a Quiet Life* is essentially his scientific autobiography.

As much for his actual research, Max will be remembered for his endless passion for knowledge, and drive for better communication of research. In 1998, the MRC launched the annual Max Perutz Essay prize to encourage young researchers to transmit the importance and significance of their research to a lay audience. At the award ceremony, accompanied by his charming wife Gisela, in introducing the nominees he would masterfully explain the science underlying each essay. The whole audience would become mesmerized by the brilliance of this frail-86-year old scientist, as he introduced examples from literature and music in his summaries.

At the award lunch, Max would sit next to students he didn't know and talk to them about their research. He was always an enthusiastic supporter of young researchers. Throughout his career, Max insisted that young scientists be given full responsibility and credit for their work, even when this was a radical idea. The prize will continue in his name.

In addition to his own research achievements, Max will be remembered for his interest in and warm support of the work of others. He inspired countless young scientists and encouraged them to communicate their research in plain language to those whose lives are changed through their work. He will be sorely missed, but his life and work will continue to shape science and motivate new generations to help us manage health and disease.

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