

WEB WATCH

Celebrating UK geneticists

• <http://www.dna50.org.uk>
In celebration of the 50th anniversary of the publication of the structure of DNA, the Medical Research Council, *Nature* and the Royal Society have worked together to produce this highly informative web site. It describes past achievements and future prospects for genetic research in the UK. It also advertises the scientific events that are taking place this year as part of the 50 year celebrations. Ethical and social issues that are associated with genetic research are addressed in the Science in Society section.

The key events, from Mendel's studies in the 1850s establishing the particulate nature of inheritance to the elucidation of the structure of DNA in 1953, are included in a useful timeline. This timeline focuses on the principal contributions that UK researchers have made to genetics since 1953, including the invention of Fred Sanger's sequencing technology in 1977 and the development of DNA fingerprinting methods by Alex Jeffreys in the 1980s. Looking to the future, the web site reviews the potential applications that could be developed from our existing knowledge of genetics and molecular biology. The source of much of this information is the UK Foreign and Commonwealth Office publication entitled 'DNA and after, 50 years of excellence'.

The site is easy to navigate, contains useful scientific information and provides a calendar of the events that will be happening throughout the year in the UK — including hands-on workshops for students, and public debates on topical issues. There is also a handy Science in the News section that is contributed by the Royal Society.

Catherine Baxter

50TH ANNIVERSARY

Another brick in the wall

The host of celebratory scientific events that are scheduled for 2003 illustrates just how many bricks have been added to Watson and Crick's

1953 foundation stone over the years.

James Watson was on hand to be honoured at the first of these events "50 Years On: From the Double

Helix to Molecular Medicine" (1–5 February, Miami, USA). In the same month, Watson also attended the premier celebratory US meeting



50TH ANNIVERSARY

After the double helix

The 50th anniversary celebrations marking the discovery of the three-dimensional structure of DNA provide an opportunity to reflect on the key developments in the field of genetics over the past 50 years, and to consider the future of genetic research.

Before Watson and Crick's 1953 paper, Avery, MacLeod and McCarty in 1944, and Hershey and Chase in 1952, had provided the experimental data that established DNA as the heritable genetic material. With the knowledge of the structure of DNA, research then focused on its replication and information-encoding properties. In 1958, Meselson and Stahl showed that DNA replication is

semi-conservative: new molecules consist of one original strand from the parental molecule and one new strand. Contributions by Crick, Brenner, Nirenberg, Khorana, Matthaei and Holley, among others, enabled the genetic code to be cracked by 1966. However, a remaining challenge is to understand the information that is encoded in regulatory DNA.

DNA sequencing has revolutionized genetics. The Sanger and Maxam-Gilbert methods were published in 1977. The first genome to be sequenced was the bacteriophage FX174 (~5 kb) in 1980 and the first free-living organism to be sequenced was *Haemophilus influenzae*

(~1.8 Mb) in 1995. Recent advances have reduced the cost and enhanced the speed of sequencing, so the sequences of several whole genomes, from a wide taxonomic distribution, have now been published — including the much anticipated human genome in 2001.

Another important technical breakthrough occurred in 1983 when Mullis developed the polymerase chain reaction (PCR). Many other tools for molecular biology have been developed over the past 50 years, including restriction enzymes, nucleic acid hybridization techniques, cloning and genetic engineering. The application of these methods has led to some interesting applications. Notably, gene therapy was first used in 1990 to treat a patient suffering with the immune disorder adenosine deaminase (ADA) deficiency; the first transgenic food — the