

When the White House knew how to do diplomacy

The race to sequence the human genome ended in a tie 20 years ago, thanks to some deft statecraft by the Clinton administration.

On 26 June 2000, US President Bill Clinton and UK Prime Minister Tony Blair presided over a carefully choreographed piece of scientific theatre. Through a video link connecting Washington DC and London, they announced to the world that scientists had completed a rough first draft of the human genome sequence.

It was quite a production. Amid accompanying music and applause from scientists, diplomats and members of Clinton's cabinet, the president entered the White House East Room. He was flanked by the two leaders of competing teams on the sequencing effort: Francis Collins, then-director of the US National Human Genome Research Institute, and Craig Venter, founder of Celera Genomics, a company formed to commercialize genome data.

It was not a day for understatements, as the reporter covering the event for *Nature* wrote. One participant, Mike Dexter, then-director of the Wellcome Trust, described its significance as surpassing that of the invention of the wheel. Clinton himself said: "Today's announcement represents more than just an epoch-making triumph of science and reason ... With this profound new knowledge, humankind is on the verge of gaining immense, new power to heal."

Exactly 20 years on from that event, the ground-breaking significance of determining the human genome sequence is clear: it sparked a revolution in human biology and medicine, and genome sequencing is now routine.

No winners or losers

Less has been said about how the start of biology's new era marked the culmination of one of the last great contests of twentieth-century science. It is hard to imagine today's politicians and their advisers declaring a truce between duelling scientists – or reminding scientists that cooperation has as much value as competition. Clinton was keen to stress that there would be no winners or losers from the sequencing race. "From this moment forward, the robust and healthy competition that has led us to this day ... will be coupled with enhanced public-private cooperation," he said, after which all three men – Clinton, Collins and Venter – shook hands.

The roots of the two teams' rivalry can be traced back to the early 1990s, when Venter resigned from his post as a researcher at the US National Institutes of Health (NIH) in Bethesda, Maryland, to work full time on establishing

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genome-sequence-data businesses. Earlier, in 1990, researchers and public funding agencies in the United States had launched the Human Genome Project (HGP), an international consortium committed not only to genome sequencing, but also to ensuring that its data would be free for researchers to access.

At a meeting in Bermuda in February 1996, the HGP's partners agreed to release sequence data every 24 hours and to deposit these data in public databases. Venter declined to be a part of this arrangement and the two groups found themselves in open dispute. Venter argued that the HGP was spending scarce public funds – some US\$3 billion – on a cumbersome approach to sequencing requiring "armies of scientists" with little scope for innovation. Meanwhile, members of the HGP questioned the ethics of Venter's business model.

Peace talks

Attempts were made to broker peace and foster cooperation, but they ended in failure and acrimony. As late as March 2000, when talks between the two sides broke down, Venter told reporters that the HGP's decision to release the text of a letter it had sent to Celera outlining what it saw as sticking points was "a low-life thing to do". One leading member of the HGP, John Sulston, then-director of the Sanger Centre (now the Wellcome Sanger Institute) in Hinxton, UK, said Celera's taking of public data and selling it along with their own amounted to a "con-job".

The extent of the vitriol on a flagship US science project did not go down well with the White House, and Neal Lane, Clinton's chief science adviser, who is now at Rice University in Houston, Texas, says that the president pressed for the dispute to be resolved. But, all the while, both sides – including the more than 1,000 researchers involved in the public effort – were continuing with their sequencing work. With a completed sequence in sight, the two groups eventually agreed that they would cross the finishing line together – and Celera would publish its sequence in the scientific literature. In his White House statement, Clinton repaid the gesture by declaring support for biotechnology companies and for the patenting of genetic discoveries.

The eventual agreement was brokered principally by Ari Patrinos at the US Department of Energy – where the idea to sequence the genome had originated in the 1980s – and Eric Lander at the Whitehead Institute at the Massachusetts Institute of Technology in Cambridge, which hosted one of the HGP sequencing centres. Patrinos invited Venter and Collins to meet at his house over pizza. "It was just the three of us; it was amazing how quickly the ice melted," Patrinos later said.

Looking back at the 40-minute announcement, the fact that world leaders played a part in efforts to tie the race to sequence the human genome is striking. It also serves as an unhappy reminder that, although biology has continued to progress, standards of statesmanship have fallen to previously unimaginable depths.

It is hard to imagine Donald Trump or Boris Johnson having such a role today.