The private world of astronomy's faded star

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Hundreds of papers, letters, and other materials which belonged to Sir Fred Hoyle -- the astronomer who coined the phrase "Big Bang" -- are being released to the public for the first time.

The collection, which comprises both printed documents and artefacts including the scientist's telescope, walking boots and even his wife's dental X-Rays, will be available for web users to peruse through an online exhibition.

Highlights from the archive, which is kept at St John's College Cambridge, will also be on display at the College's 17th-century Old Library from 19 March, as part of the University of Cambridge's annual Science Festival.

It marks the completion of an epic, three-year project to catalogue 10 filing cabinets of materials which were donated to St John's by Fred Hoyle's widow, Lady Barbara Hoyle, after her husband's death in 2001.

A librarian, Katie Birkwood, was appointed to undertake the considerable task of sorting through some 680 printed books, 22 cans of film, 30 other artefacts and 152 archive boxes. Alongside drafts and manuscripts, diaries and notebooks, the collection contained material relating to Hoyle's breakthrough work on the origin of chemical elements, copies of his sideline works of science fiction, his first telescope, and the boots in which he "bagged" all of Scotland's munros.

The entire collection has now been catalogued, and much of it has been photographed or digitised and will be available for public view in a permanent, dedicated area on the College's website, which as well as a virtual exhibition includes other resources such as materials for schools.

One aim of the initiative is to restore Hoyle and his achievements to wider public attention. At the height of his powers, the astronomer was a household name. Later in life, however, he faded from view; the result both of some controversial theories, and an inability to let disputes lie - which almost certainly cost him a Nobel Prize.

After three years working on his archive, Birkwood believes that Hoyle's infamously stubborn character is not the full story. "I certainly wouldn't have wanted to be on the wrong side of an argument with him, but there was much more to him than that," she said. "Fred's story is about how someone can be a world-class academic, have ideas that never catch on, and lead a complex, difficult life in spite of their brilliance. That's not the two-dimensional picture of genius we always get from biographies or Hollywood films."

Another aspect of Hoyle's life is, Birkwood believes, something of a

parable for modern times, about the power of access to education. Born in the village of Gilstead, near the town of Bingley, West Yorkshire, on 24 June 1915, Hoyle was hardly from a well-heeled background and had to apply to Cambridge twice, because the first time round he couldn't afford the course.

Winning a scholarship at the second attempt, he went on to outclass his peers and establish himself as one of the leading theorists of his day. For scientists, his lasting legacy was in the field of stellar nucleosynthesis, in which, along with three other scientists, Hoyle helped to unravel the process by which chemical elements are made inside stars.

The discovery was published in a mammoth paper, which he co-authored, in 1957. In 1983, it won the Nobel Prize for Physics - but instead of Hoyle, the award went to one of his colleagues, the American William Fowler.

One reason may have been that Hoyle's own star was by that stage on the wane, marred by some of his odd later theories about the Universe as a form of intelligence in its own right, and a series of controversies concerning other aspects of his work.

In particular, Hoyle's own theory about the universe having always existed in a "steady state" led to a long conflict with the Cambridge radio astronomer, Martin Ryle. From the 1960s onwards, Ryle had proven that the universe had in fact expanded from a dense, hot state. Hoyle vocally rubbished this idea of a "Big Bang", but ironically, it was the term - and not his argument - that stuck and became his most popular legacy.

When in 1974 Ryle shared the Nobel Prize for Physics with Antony Hewish for their work on pulsars, Hoyle was again in the vanguard of critics who complained that their co-researcher, Jocelyn Bell Burnell, had gone unrecognised. "This almost certainly pissed off the Nobel Prize

Committee sufficiently to stop them wanting to give him the prize in nine years later," Birkwood said.

The exhibition seeks to show that there was far more to Hoyle than controversies within the upper echelons of academia. Highlights include an eight-page letter he wrote aged 15, having just bought his first telescope, enthusing about his observations. There is also correspondence from young fans about the science fiction books he wrote in his spare time, as well as material representing Hoyle the hill-walker, the avid-chess player, and pictures of him at leisure and with his family. It all adds up to a different side to the man frequently portrayed as an irritable loner.

"Some days I'm utterly infuriated with him because he was so terrible at filing," Birkwood added. "Once he had written something he appears to have dumped it on the floor. Then occasionally everything would get swept together and stuck in a filing cabinet. So alongside academic papers you get pictures, letters, or even his wife's dental records."

"Everyone thinks of him as a grumpy man, but I think he could also be a very genial chap. I just wish he had let that come out more often and stopped taking everything so seriously. If he was here now, I'd say to him, just lighten up a bit; let things pass once in a while."

Provided by University of Cambridge