Wednesday 4th November

Kuen Kao was born in Shanghai, China on this day 1933. He went to a progressive Shanghai World School where he learned French and English. At school he took the English name Charles and when he was 14 his family fled the Chinese Civil War and moved to Taiwan and then Hong Kong. Kao wanted to study Electrical Engineering which was not a subject at Hong Kong's only University at that time, so in 1953 he moved to London to study at Woolwich Polytechnic, then a PhD at UCL.

In the 1960s he worked at the UK research centre for telecommunications on whether glass fibres could replace metal wires for carrying information. They were promising but the light faded. Kao argued that purer glass would work better though others were sceptical and wanted to scrap the idea. In 1970 glass fibres with far fewer **impurities** were produced and as Kao had predicted the losses were minimal. Modern fibre-optic communication was born.

Inside these fibres, light carries information at around 200,000 km/s, roughly two-thirds of its speed in a vacuum. Electrical signals also travel quickly, but fibre can carry much more data over long distances, with less signal loss and no electrical interference. With modern systems sending many simultaneous signals using different wavelengths of light. Charles Kao shared the 2009 Nobel Prize in Physics for his work on fibre optics, though by then he was suffering from Alzheimer's disease. He died in Hong Kong in 2018.



- How do you think Kao felt arriving in London to study?
- How have fibre-optic communic-ations changed the world?

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Charles Kuen Kao was born in Shanghai, China on this day 1933. In 1947 his family fled civil war and moved to Hong Kong. Kao wanted to study Electrical Engineering which was not a subject at Hong Kong's University, so in 1953 he moved to London to study at Woolwich Polytechnic.

In the 1960s he researched whether glass fibres could be used instead of metal wires to carry information. Though initial tests failed he persevered and when glass with fewer **impurities** was produced in 1970 he was proved right and the age of fibre-optic communication was born.

Inside these fibres, light carries information at 200,000 km/s, with less signal loss than wires and with multiple wavelengths used, more information can be carried. For his work Charles Kao shared the 2009 Nobel Prize in Physics.



- How do you think Kao felt arriving in London to study?