

# Celebrate Wales' history of scientific achievement

Wales should celebrate its history of science and technology innovation, says Professor John V Tucker of the Learned Society of Wales

**T**HE census returns of 1851 reveal that in Wales more people were working in industry than in agriculture. With this observation we can claim that Wales is the world's first industrial nation.

What was Welsh industry? In south Wales, we think of the manufacturing of metals and by-products in the Swansea and Merthyr regions, and the production of coal in the Valleys.

But there is so much more: the civil engineering of transport networks of ports, canals, and railways, and the technical development of professional services in finance, education and utilities.

Industry was an outstanding enterprise whose science and technology were creating a new technically complex Wales.

Generally, Wales and its people have played a substantial role in the growth of scientific and technological knowledge. But how much is known about this history and heritage?

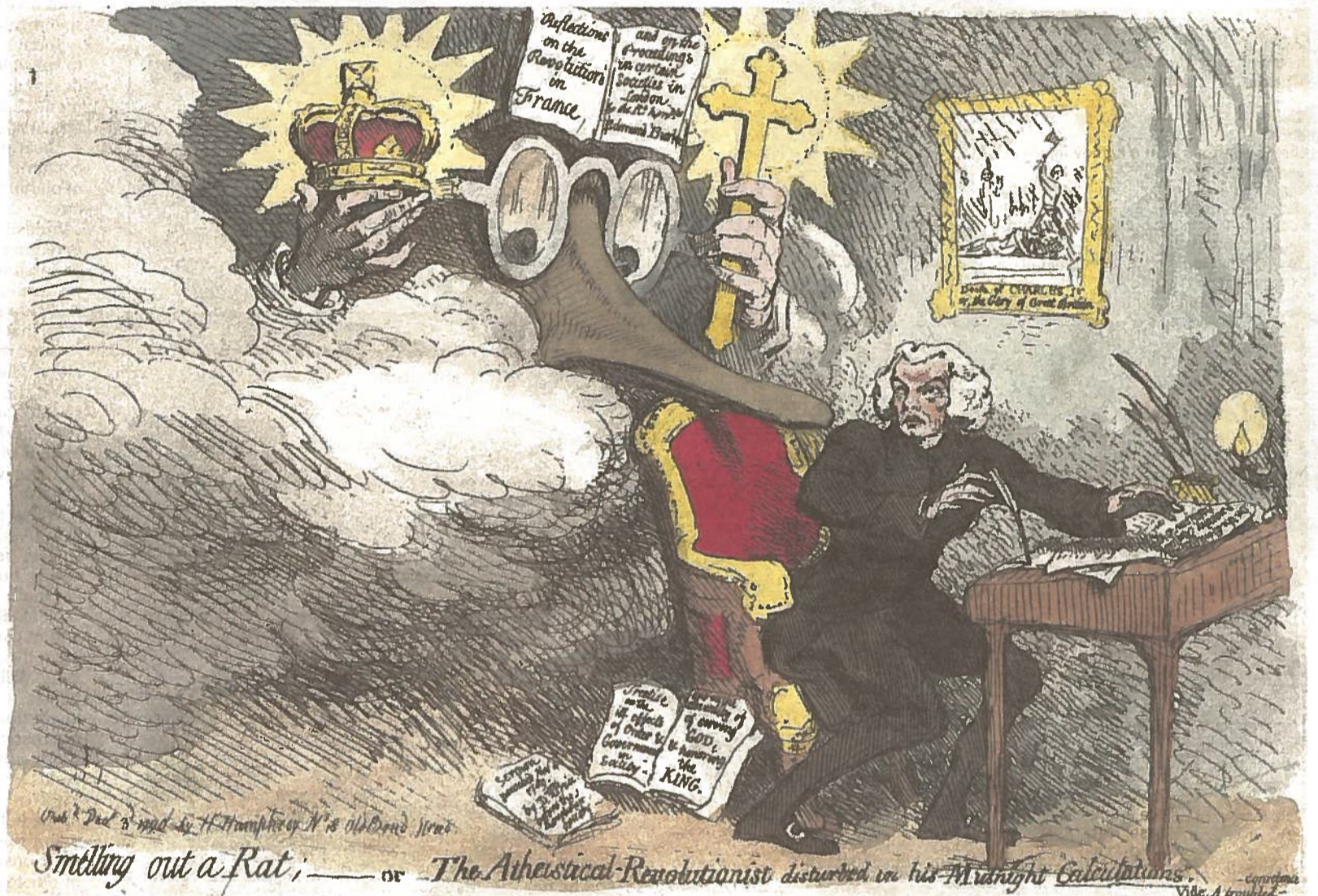
Where can one find this out? Knowledge of Wales' heritage in science, technology, engineering and medicine is poor, despite lone attempts to raise awareness.

The late Professor Phil Williams, physicist and politician, spoke many times on the neglected scientists of Wales. Steve Jones created a booklet of Welsh Achievements for the Welsh Development Agency. Inspired by the posters of the writers of Wales he saw in classrooms, Neville Evans created two sets of posters, decades apart, of contemporary Welsh Scientists and sent them to every school in Wales.

Welsh scientific achievements accumulate. For example, Swansea and Cardiff physicists played leading roles in a trinity of extraordinary discoveries in our time: the creation of molecular antimatter, and the discoveries of the Higgs boson and gravitational waves.

At the founding of the Learned Society of Wales in May 2010, a programme on our scientific history and heritage was established. Its aim was to promote research and build a scholarly community.

The society has sponsored lectures and conferences, helped to develop and fund the new Scientists of Wales book series, published by University Wales Press, and supported the e-forum Myrddin to bring people



► An 18th century print showing Richard Price (1723-1791) of Llangainor, near Bridgend, one of the most influential intellectuals Wales has produced

together and share information.

The series has published full-length biographies of Robert Recorde and William Robert Grove, and the latest volume on the particle physicist Evan James Williams will be launched at the Eisteddfod in August.

The editors of the series have a list of more than 50 Welsh scientists in need of biographies.

The society has also commemorated some important names with medals for high achievers: we have three medals named for the Dillwyns of Swansea, a medal and lecture named for William Menelaus of Dowlais, and a medal for Frances Hoggan.

These initiatives have been made possible by the sponsorship of Airbus, the South Wales Institute of Engineers Educational Trust, and the Welsh Government, respectively.

In need of a prize and sponsorship is Richard Price (1723-1791) of Llangainor, near Bridgend, one of most influential intellectuals and polymaths Wales has produced.

Price was a dissenting minister whose radical and controversial



► The Learned Society of Wales celebrates its granting of the Royal Charter of Incorporation in October 2015. Pictured are society officers, from left: vice-president Prof Meurig Wynn Thomas; general secretary Prof John V Tucker; president Sir Emyr Jones Parry; treasurer Prof John Wyn Owen; and vice-president Prof Ole Petersen

writings on the political, economic and social affairs of his time are well known and studied today. But less known is that Price was also at the heart of science in the 18th century - an active Fellow of the Royal Society, along with scientific friends such as Benjamin Franklin and Joseph Priestley.

Price was a major contributor to what we find valuable in science after Newton's passing. His mathematical studies were original contri-

butions to subjects that are centre stage in contemporary computing and data science.

In discovering, supplementing and applying Thomas Bayes' unpublished work, he refocused probability theory on the techniques and vast potential of statistical inference. In his work on pensions and insurance he developed rigorous methods for constructing data sets, and computing probabilities, that make him the most influential figure in the history

of actuarial thought. For more see Liberty's Apostle (University of Wales Press), a splendid new biography of Price by Paul Frame.

Why does the study of the scientific history and heritage of Wales matter? As with all Wales studies, advocated by M Wynn Thomas in this column last month, it has a role to play in many pressing contemporary issues in Wales.

Since science is essential for the economic competitiveness and sustainability of Wales, our heritage in invention, innovation and change influences how we - and investors - see ourselves.

Our national history of science also enriches the education of students.

Science and engineering are sources of inspiration and practical driving forces in the creation of modern Wales. They need to be prominent in our national heritage.

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