# AN INSIGHT INTO INNOVATION INWALES



Llywodraeth Cymru Welsh Government

### INNOVATION - THE SUCCESSFUL EXPLOITATION OF NEW IDEAS

On a global scale Wales is a small, but smart country, in which every opportunity has been taken to optimise resources, designs and processes. Shaped by landscape and culture it made its mark on the world through the maximisation of the great natural mineral wealth found here. Wales continues to make its mark through in-depth scientific and technical understanding and commercial innovation. From the past to the present an impressive list of achievements, many of which are the first of their kind in the world, have given Wales a great momentum for the future.



# A NATION OF INNOVATION

Thomas Telford's Menai Suspension Bridge of 1826 was the world's first large scale road crossing by an iron suspension bridge.

> The type-printing telegraph was invented by David Hughes from Bala in 1855 and used throughout the expanding USA.

invented technology that enables refrigerators to work without power for 10 days or more, providing eco-friendly cooling that has the ability to save lives and change lifestyles.

Mid Wales-based Sure Chill

The development of the Internet followed on the pioneering work on packet switched data communication by Donald Davies of Treorchy at the National Physical Laboratory in the 1960s.

The largest single span glasshouse in the world was designed by Lord Norman Foster and partners for the National Botanic Garden of Wales at Llanarthne.

John Hanbury pioneered the rolling of sheet iron at the end of the 17th century leading to the establishment of Pontypool as the foremost producer of tinplate and Japanware in the 1800s.

NanoHealth, the first facility of its kind in Europe, is established at Swansea University to focus on the diagnosis of disease and medical intervention at a molecular level. The first building to exploit the

technique of reinforced

concrete in Britain was the

multi-storey Weaver's Mill of

1897 in Swansea.

In 2009 the Centre for

The first over-water transmission of radio waves was made by Gugliemo

Marconi between Lavernock and the island of Flat Holm in the Bristol Channel in 1897. Lion Laboratories of Barry

across the Usk at Newport was one of the first cable-stayed bridges built in the UK.

George Street Bridge

In 1940 Edward Bowen from Swansea developed airborne radar for use as a reliable, operational system in World War II.

developed the world's first electronic breathalyser in 1974 and sold the product to police forces around the world to measure the evidential alcohol levels of motorists.

customer-qualified 6" semiconductor wafers were produced for the first time by IQE plc of St. Mellons, Cardiff.

**Fully** 

# A NATION OF **INNOVATORS** *1750*

#### William Weston Young 1776 - 1847

a high quality firebrick for furnace lining that used Dinas silica rock quarried and manufactured in the Vale of Neath from 1822. It was exported worldwide and even today the Russian word for 'firebrick' is 'Dinas'.

Entrepreneur and inventor, developed



## Sir William Henry Preece

1834 - 1913b. Caernarfon. Electrical engineer



and inventor who developed his own system of wireless telegraphy and telephony in 1892 but who would later champion Guglielmo Marconi's system and assist with his experiments and in securing funding.

#### Hon. Charles Stewart Rolls 1877 - 1910

engineering skills as one of Britain's

b.Monmouth. Developed his

earliest aviators and joint founder of Rolls Royce. **Donald Davies** 



## 1924 - 2000

b. Treorchy. Working at the National

foundation for the Internet through his work on packetswitched data communication. Professor Julie Williams

Physical Laboratory, he laid the



#### b. Trellech, Monmouth. Pioneer of the study of mathematical logic.

Earl Bertrand Russell

1872 - 1970

1935 - 2013

#### b. Anglesey. Inventor of the 'Breathalyser' and the later electronic version, the 'Alcolmeter', which was

**Dr Tom Parry Jones** 

adopted world-wide.



Sir Chris Evans 1957 b. Port Talbot. Entrepreneur in the

field of biotechnology and founder of companies in the fields of genes,

enzymes and micro-organisms.

1957 b. Merthyr Tydfil. A global leader in research into Alzheimer's disease at Cardiff University, work highlighted

by Time magazine as one of the world's top 10 medical breakthroughs of 2009. 2000

Innovation is changing the way we live. We need new ideas to stay competitive, new technologies to improve lives, and new insights to lead the way.



Business Wales