

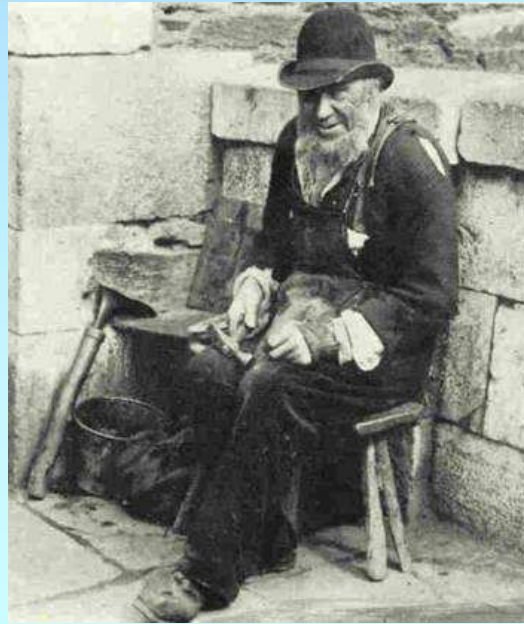
Minimising Risk

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Entrepreneurship
without risk?

Llanfair Pwllgwyll

“St Mary’s Church by the pool near the white hazels.”

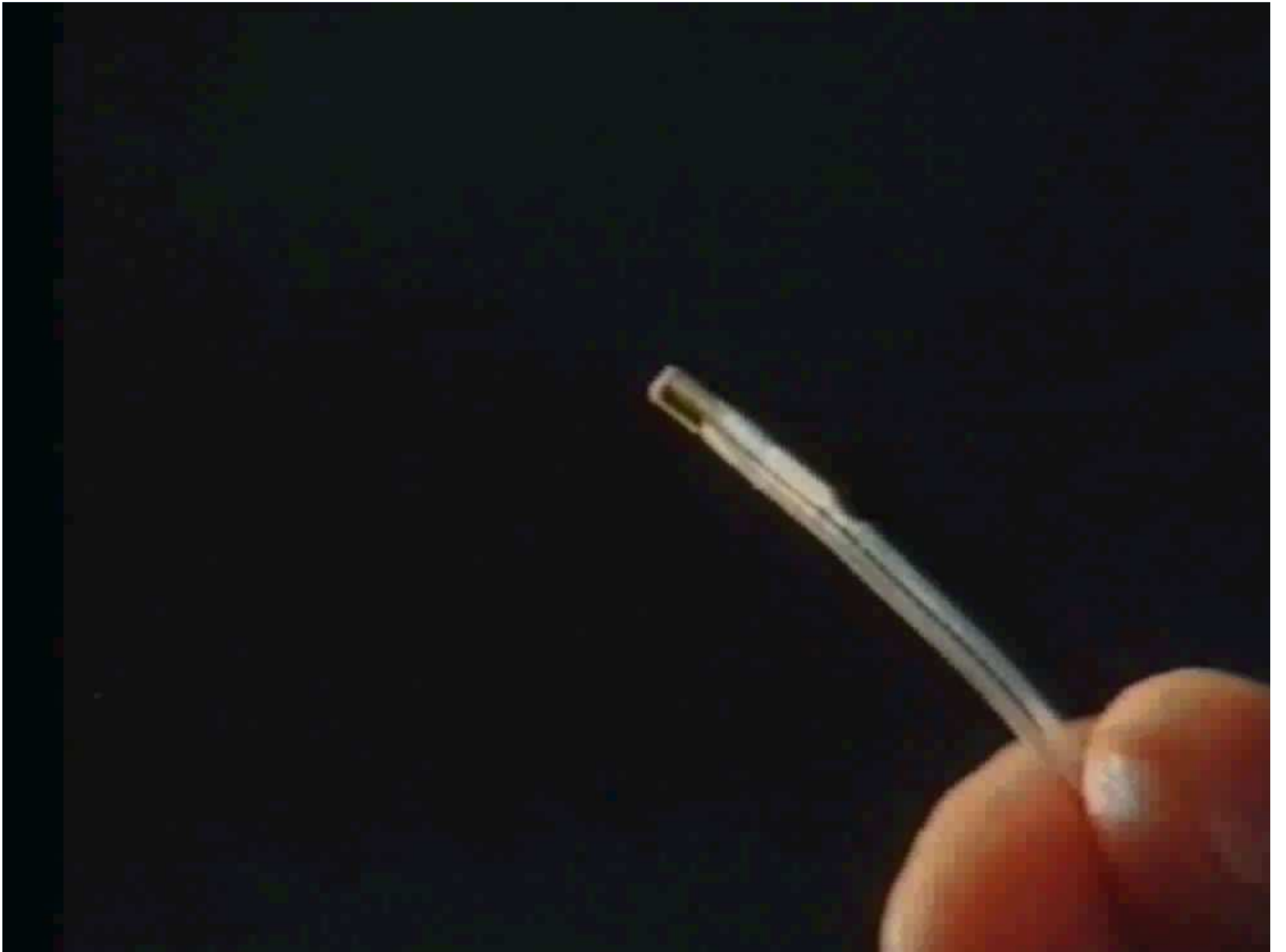


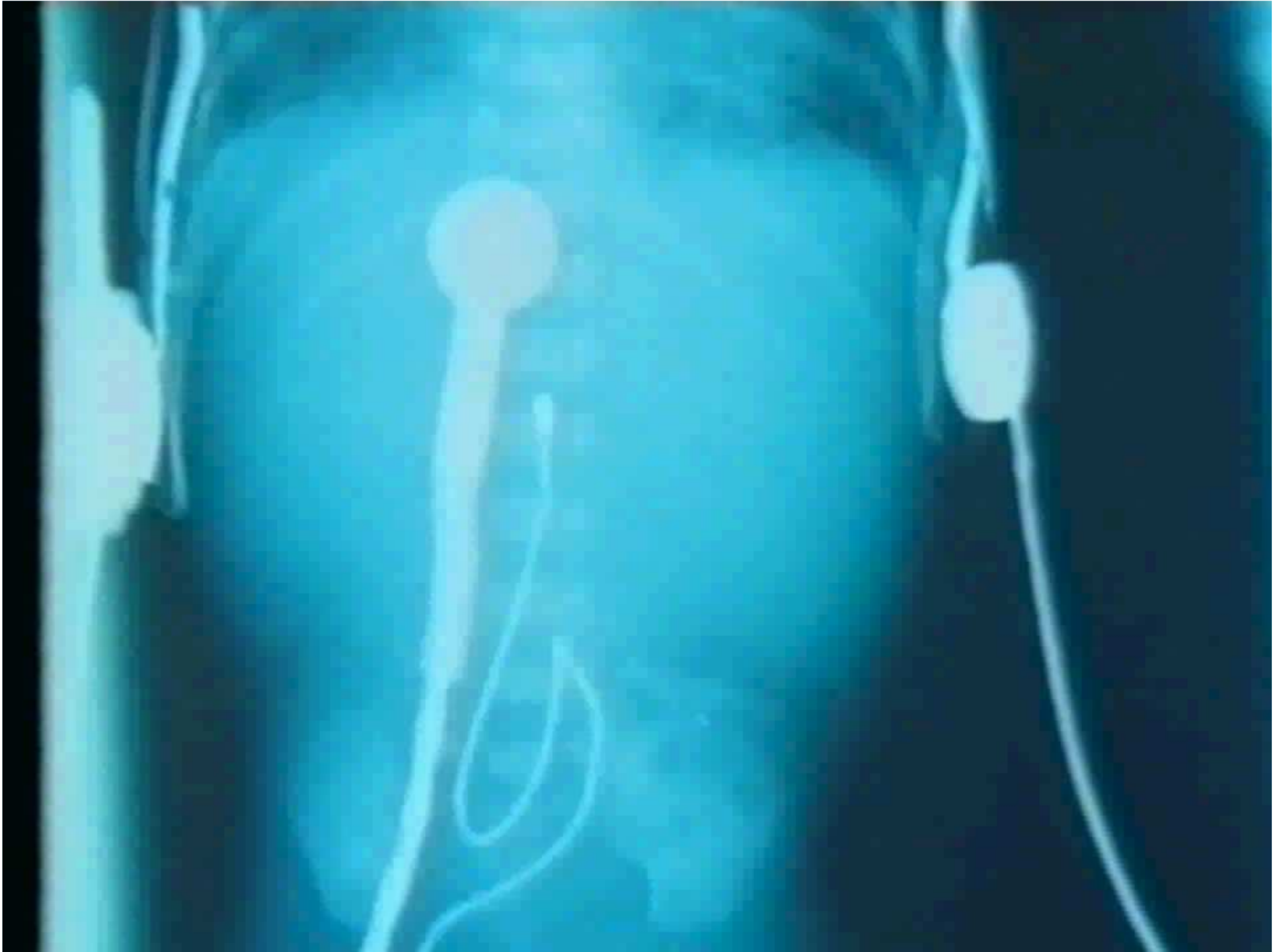
St Mary's Church in the hollow of the white
hazel near to the rapid whirlpool and the
church of St Tysilio of the red cave.



First Venture Catheter-tip oxygen sensor.

Prior to 1950, the chance of survival for a pre-term baby of less than 1200 grams was almost nil.





Decision:

Applied for patent and assigned it
to a company.

University Employed
Minimal Risk

Benefits

- Improved survival rates.
- Funding for my university research.
- Royalties from the invention for a number of years.
- 200 jobs created.

Second Venture

Non-Invasive Combined Oxygen and
Carbon Dioxide Sensor

Transcutaneous Oxygen and Carbon Dioxide Monitoring System

For continuous monitoring of transcutaneous O_2 and CO_2 partial pressures.

Single transcutaneous Sensor

Measurement of both oxygen and carbon dioxide is performed using a single sensor head.

Simple sensor preparation

Easy 'snap-on' membrane assembly allows user to prepare sensor in seconds prior to calibration.

Calibration using precision gas mixtures

A two point calibration for both oxygen and carbon dioxide allows fine tuning of the system for maximum accuracy.

Direct digital pO_2 and pCO_2 readout

Readouts of transcutaneous pO_2 and pCO_2 are displayed simultaneously on monitor.

Automatic warning of $tcpO_2$ and $tcpCO_2$ fluctuations

Both audible and visual alarms are triggered by values outside of preset limits.

Two completely separate temperature monitoring circuits in combined sensor

Inappropriate power supply to the sensor will automatically cause all power to be shut down to the sensor, eliminating problems associated with overheating.

Battery operated

The monitor utilises rechargeable batteries which are automatically recharged when monitor is plugged into mains supply.

Pictured is the combined transcutaneous sensor which measures oxygen and carbon dioxide simultaneously.



Decision:

Applied for patent and assigned it
to a company.

University Employed
Minimal Risk

Benefits

- Ability to monitor newborn infants non-invasively for longer periods of time.
- Funding for my university research.
- Consultancy with major multi-national pharmaceutical companies.

Consultancy with a major pharmaceutical company lead to an offer of a contract to manufacture non-invasive monitors for the medical market.

Third Venture
Start-Up Company

Physiological Instrumentation
Limited

University Employed
Minimal Risk

Products Developed:

- Transcutaneous non-invasive oxygen monitors.
- Pulse oximeters.
- End-tidal carbon dioxide monitors.

Company Acquired.

Benefits:

- Company acquired by US healthcare company - cash payout to shareholders.
- Future of company in the UK assured through this acquisition.
- More than 50 jobs created locally.

Further benefit: Emergence of other hi-tech companies in the area.



Fourth Venture
Start-Up Company

Whitland Research Limited

Company Employed
High Risk!

Products in development:

- Non-invasive tissue oxygen saturation monitor.
- Non-invasive extra-corporeal blood oxygen saturation monitor.

Under research:

- Invasive blood oxygen saturation monitoring system

Company Acquired

Benefits:

- Non-invasive research product sold to US multi-national healthcare company – cash payoff to shareholders.
- Spin-off company formed which now has bases in the UK and the USA.