

Have bacteria won?



IODURES & BROMURES *Cros*

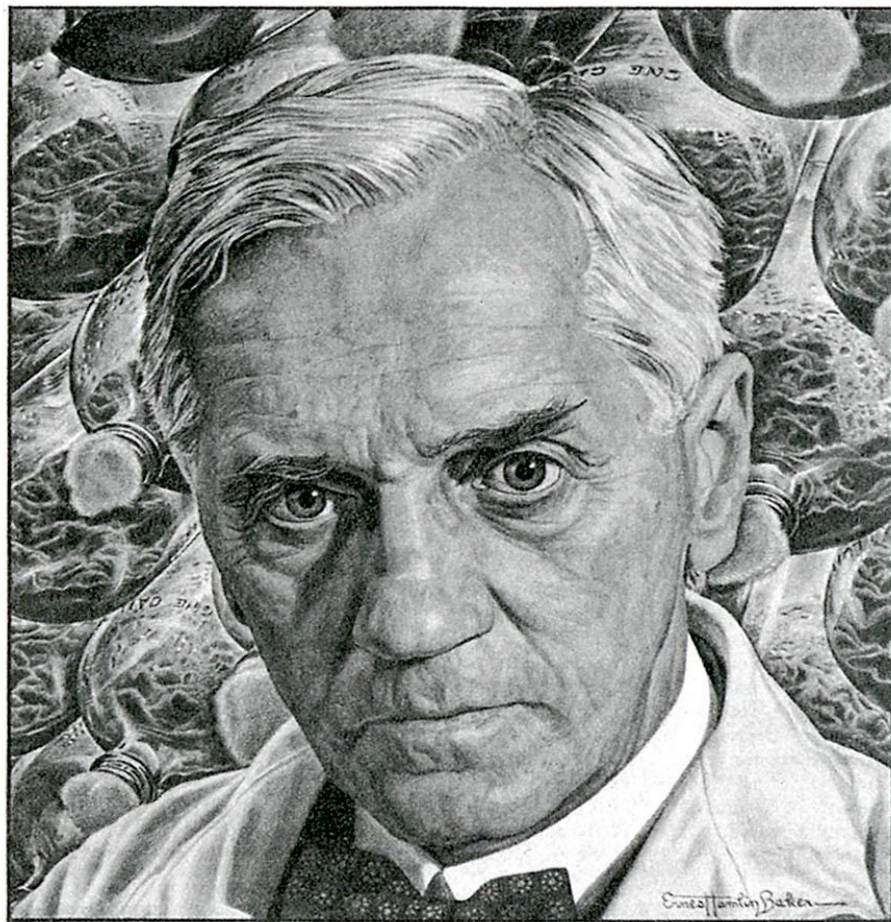
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TIME

THE WEEKLY NEWSMAGAZINE



DR. ALEXANDER FLEMING

His penicillin will save more lives than war can spend.

(Medicine)

‘It is time to close the books on infectious disease’.

Never said in the 1960s by the US Surgeon General, William Stewart.



НАССР

Outbreak of *E.coli* O157 in South Wales in 2005

- Primary Case(s) in School ▲
- Abercynon Infants School ▲
- Local Authority Boundary —
- City/Towns/Villages ■

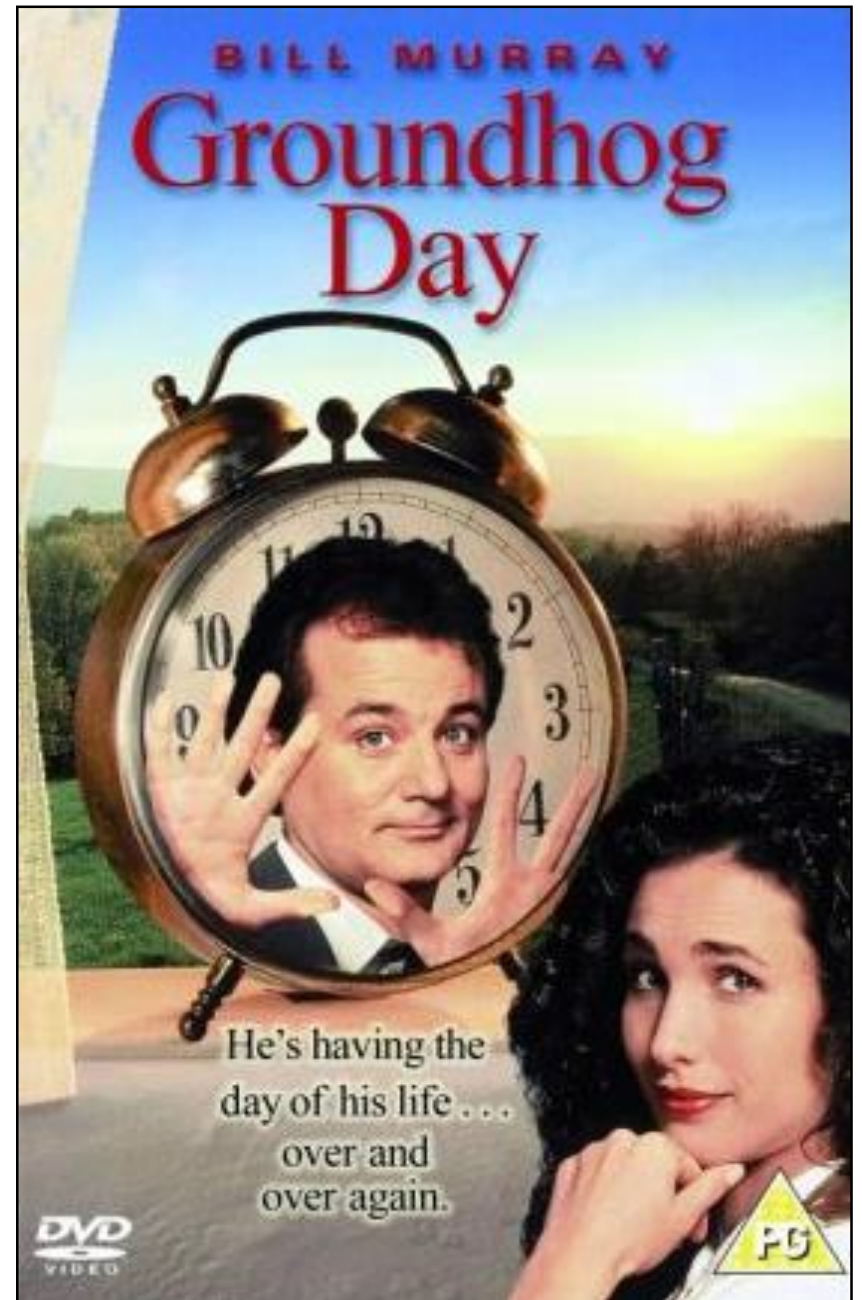




**BOY LEFT
UNABLE TO
SPEAK OR
WALK BY
E.COLI BUG
PICKED UP
ON SCHOOL
FARM TRIP
WINS HUGE
DAMAGES
PAYOUT**

Groundhog Day is a 1993 comedy film directed by Harold Ramis, starring Bill Murray and Andie MacDowell.

In the film, Murray plays Phil Connors, an egocentric Pittsburgh TV weatherman who, during a hated assignment covering the annual Groundhog Day event (February 2) in Punxsutawney, finds himself repeating the same day over and over again. After indulging in all manner of hedonistic pursuits, he begins to re-examine his life & priorities.



Groundhog Day' for chair of E.coli inquiry

E.coli
Public Inquiry

Hygiene failures similar to Scottish case



Professor Hugh Pennington

Professor Hugh Pennington.

OTHER BIG E.COLI OUTBREAKS

- in 1993 the Jack in the Box burgers outbreak in the Western US resulted in 2 cases and four deaths.
- The most serious outbreak in the UK opened in 1996 in Wishaw, near Berwick, Scotland. It resulted in 500 cases and 17 deaths.
- in 1996 in schools in Sakai, Japan, an outbreak resulting from radish sprouts to three deaths.
- in 2000 an outbreak in water at Wilkerton, Ontario, Canada, resulted in 100 cases and seven deaths.

WORRYING similarities have emerged between the world's worst E.coli O157 outbreak and the outbreak in the South Wales valleys.

The E.coli public inquiry was yesterday shown a blog entry suggesting that chairman Professor Hugh Pennington was trapped in "Groundhog Day".

The item, posted at the end of February on an International Food Safety Network blog, asked how the "good professor" who led the inquiry into the Wishaw outbreak in Scotland in 1996, which infected about 500 people and killed 17, could escape from "this recurring nightmare".

It added: "The inquiry into the 2005 outbreak is again chaired by Prof Pennington, and has again heard testimony highlighting gross managerial failures and shocking levels of complacency."

The Scottish outbreak was caused by meat produced by butcher John Barr, who was found to be using the same knives to handle raw and cooked meat.

The inquiry into the South Wales valleys outbreak has heard how butcher William Tudor relied on one vacuum-packing machine for raw and cooked meats.

The single machine, in use for at least nine months before the outbreak, has been repeatedly referred

Madeleine Brindley

to as a serious risk of cross contamination, and was placed beneath a fly-killing machine at the Bridgend Industrial Estate factory.

Among the many recommendations the Pennington group made after the Wishaw outbreak were changes to the butcher licensing system, to ensure that all food handlers have at least basic food training and all supervisory staff – and those who run small, one-person operations – to be trained to at least intermediate level.

Another recommendation stated there should be: "Separation, in storage, production, sale and display, between raw meat and unwrapped cooked meat/meat products and other ready to eat foods."

Speaking in 1999, Prof Pennington said, "The prospect of another Mr Barr type situation is still quite real because everybody I talk to in meat inspection and environmental health tells me there are people who are still not doing the right thing."

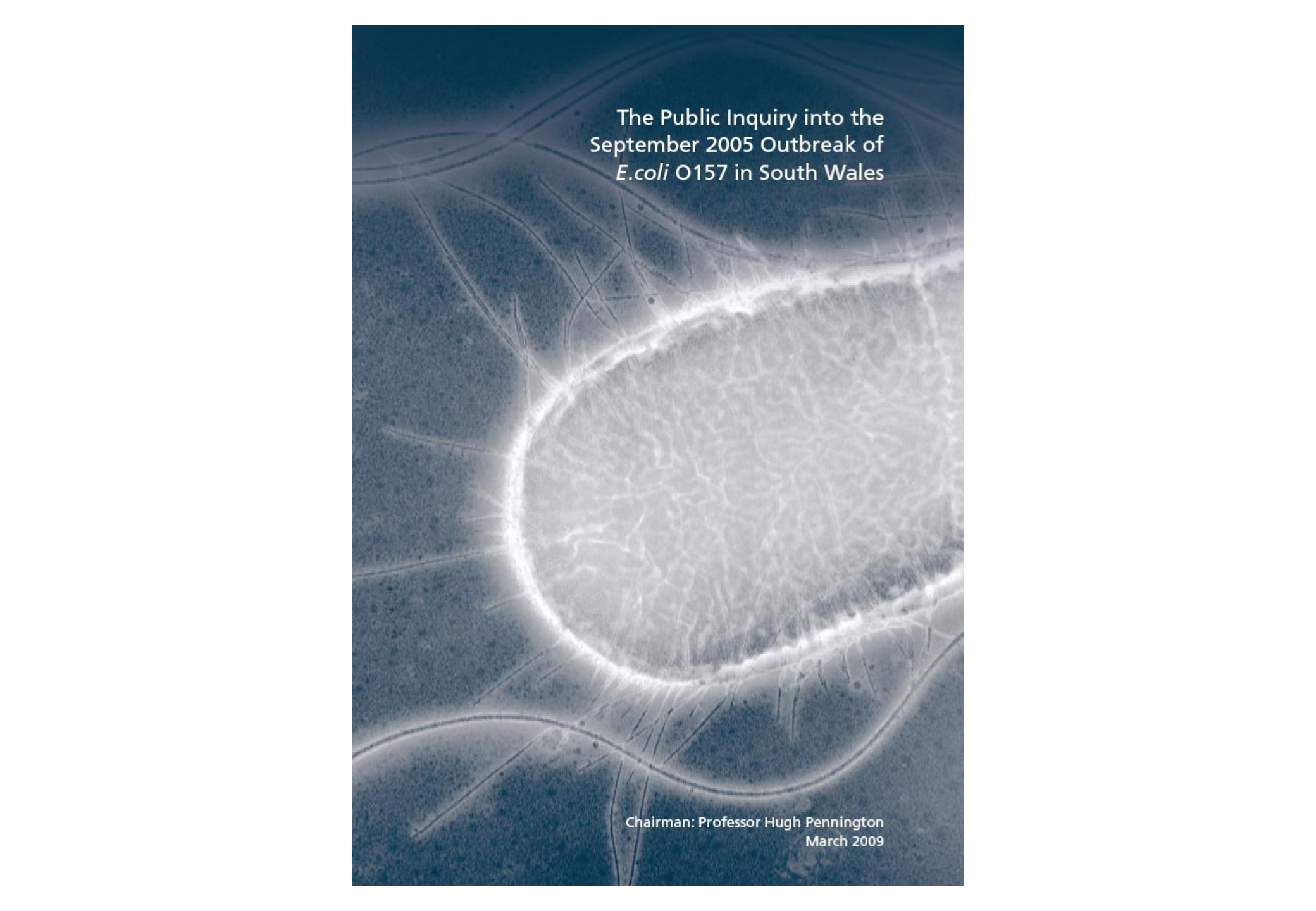
Despite the recommendations, Tudor repeatedly passed routine environmental health inspections and was awarded his butcher's licence just over a month before the outbreak, which killed five-year-old Deri Primary School pupil Mason Jones, even though Bridgend Council's inspectors were aware that he

was working with only one vac-packing machine.

Asked about the Groundhog Day blog entry, by Prof Pennington, Dr Salmon, director of the Communicable Disease Surveillance Centre Wales, who was part of the outbreak control team, said: "The butcher, John Barr, as far as I understand, was extremely well connected in the location of which his enforcement was taking place.

"It will be important to take into account how much such considerations may or may not have applied in the case of William Tudor."

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A microscopic image of E. coli O157 cells, showing a large, central, circular cell with a textured, granular interior and a distinct, bright, wavy outer boundary. The background is dark blue with faint, intersecting lines and other smaller cells, suggesting a dense culture.

The Public Inquiry into the
September 2005 Outbreak of
E.coli O157 in South Wales

Chairman: Professor Hugh Pennington
March 2009





НАССР

Important Outbreaks

1993	Jack in the Box	Burgers	Western US	732 Cases	4 Deaths
1994	West Lothian	Milk	Scotland	100 Cases	1 Death
1996	Wishaw	Meats	Scotland	ca 500 Cases	17 Deaths
1996	Sakai City Schools	Radish Sprouts	Japan	ca 8,000 Cases	3 Deaths
1999	North Cumbria	Milk	England	114 Cases	3 HUS
2000	Walkerton	Town Water	Canada	ca 2,300 Cases	7 Deaths
2006	US Nationwide	Spinach	US, Canada	200 Cases	3 Deaths



Salmonella, England & Wales

	Total	<i>S. enteritidis</i>
1997	32,986	23,231
2004	14,283	9,028
2014	7,250	2,331
2015	8,558	2,495

E.coli 104:H4

Stx 2 and EAaggEC

No eae genes

Germany, France, May-July 2011

3128 cases

782 with HUS

46 deaths

Next-generation sequencing

Fenugreek seeds

Egypt Nov 2009, 15,000kg in container
Offloaded Antwerp, barge to Rotterdam
By road to Germany (400kg to UK)
75kg to German sprout producer

Outbreak

95kg from UK to France
Jam jar germination

Outbreak

Campylobacter

Laboratory reports England & Wales

2006	46,748
2012	65,044
2015	55,697
2016	52,129

Campylobacter

EU 9 million cases/year

UK 280,000 cases/year

Fresh shop chickens 59%+ve



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**‘Making predictions is difficult,
particularly about the future’**

Moore's Law

Computer power doubles every 2 years

Rate of reduction of DNA sequencing costs faster.

Rate of increase in its power faster.

Microbes evolve in real time

Regulation is difficult

Money will be short

Greed will be with us for ever!

Have bacteria won?

No....but