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**A CUP OF TEA AND A PIECE OF CAKE WITH  
ANTONY TWORT, SON AND BIOGRAPHER OF  
FREDERICK WILLIAM TWORT F.R.S. 1877-1950**

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Who else can say that they have walked seven times from John O’Groats at the northernmost top of Scotland, to Lands End on the south west tip of England? Dr. Antony Twort laughs as he says it was all downhill! To be precise, it was these years: 1974, 1997, 2000, 2002, 2003, 2005 and 2006. Yes, that is seven times. Antony is now 85 years old. Having retired from a medical career, travelled, and written his famous father’s biography, which is, as he describes – a scientific tragicomedy – Dr. Antony Twort has since achieved that certain ‘claim to fame’ himself with his extraordinary walking achievements.

Following in the footsteps of Frederick William Twort, who made several important and far-reaching discoveries in microbiology, including bacteriophages, Antony Twort went to St. Thomas’s Hospital, London to start his medical career. He was taught surgery by the notable Philip H. Mitchiner who was Honorary Surgeon to King George VI amongst many honours, and also a Major-General in the Territorial Army. Antony qualified as a doctor in May 1948 just a few weeks before the establishment of the National Health Service.

At the time of the First World War, one of the pressing and major health challenges was to halt the serious epidemics such as dysentery and cholera, especially among those serving in the Middle East. It was in 1915-17 when Frederick Twort and, separately, Felix d’Herelle made their discoveries of bacteriophage and anticipated therapeutic potential. The following literature shows that epidemics were indeed abated and often in a timely manner, preventing further outbreaks and the death of thousands in several countries.



Dr. Antony Twort with a copy of his book: IN FOCUS – Out of Step - inscribed ‘To Grace’.

By 1949 the popular press, Penguin Books, included articles by both men in the same paperback publication, Science News 14. Readers were informed by d’Herelle of the bacteriophage treatment and prophylaxis going on in Russia, Egypt, India, Germany, Japan, China and of course in Tbilisi, Georgia. In the UK, F.W.Twort was convinced that his research offered high prospects of success, thus reducing an incalculable economic loss from

illnesses in man – and indeed the animal and vegetable kingdom. (It is sad to read that after a lifetime's work, his research had, in its last stages, been foiled.)

Now, in 2008, the newspapers are full of grim stories about the over-prescribing of antibiotics, side effects, hospital-acquired infections and other unsolved challenges. What message does Antony Twort have for us? Tea and scones, and a slice of fruit cake encouraged some wonderful anecdotes and asides.

His last five walks were for charities, but he would probably have walked anyway – for fun! The Land's End-John O'Groats Association say they know of no one who has walked as many times as he has. Several people have turned round straightaway and walked back. On the famous signpost plinth at John O'Groats there is a brass plate in memory of a cyclist who was killed while on his twelfth ride.

Antony explained that his father was strictly named Frederick William. At his childhood home he was known as 'Fred', never the full Frederick. Later, he acquired the alternative of 'Peter', after Peter the Great of Russia. Antony's mother always called him by that name.

I recall from the archives at the Wellcome Library, a letter when Antony was born in 1923. His new godfather, Edward Mellanby described him as 'the latest Bunny-Twort phenomenon'. These fellow scientists certainly enjoyed a gentle joke – a topical play on the recent phage discovery, still referred to today as the "Twort-d'Herelle phenomenon".

With a second cup of tea for refreshment, there was time for some words of wisdom from Dr. Antony Twort. He had this to say:

"When there are major challenges facing us, such as world population pressures, global warming, AIDS and hospital-acquired infections, there is clearly an urgent need for a concentration of effort to overcome them. Certainly, in the field of microbiology, when considering the problems posed by AIDS, MRSA, 'bird flu' and suchlike, it would seem wise to leave no stone unturned in search of solutions – perhaps with a re-exploration of old ground. This should include avenues of apparently unfruitful research which might benefit from new knowledge gained in other directions. The therapeutic potential of the bacteriophages, either alone or in conjunction with some hitherto undiscovered facilitating agent, would appear to be a most worthy subject for intensive effort.

"Of course, 'money talks'. There have been numerous occasions when financial considerations have distorted logic and common sense. One of F.W.Twort's brothers, in disgust, abandoned his research into the carcinogenic properties of lubricating oils (mule-spinners' cancer of the scrotum) because of the apparent suppression of his results by vested interests. The drug industry has to see the possibility of great profit before embarking on lengthy and costly research. Cost-benefit analysis plays a large part in the real world. The risks of failure have to be put under the microscope as well as the contents of a Petri-dish!

Failure can be seen as:

- results useless and a waste of time;
- research or product too expensive;
- 'cure worse than the bite'.

"My father was vehemently anti-red tape and not a lover of the Establishment, but

sometimes the caution exercised by regulatory bodies can be salutary.

”F.W.Twort was cognizant of the fact that from the very earliest of times not only the generation of life itself, vegetable and animal, but evolution and immense diversity must have been under the influence of physical factors as well as chemical. Furthermore, those physical factors playing on the evolutionary soup were not constant for a moment; some periodic such as the sun, the phases of the moon and the tides, others random like moisture and temperature. I believe my father, amongst other aspects, considered random refraction of light occurring in nature; hence his interest in submitting culture tubes to the influence of different wavelengths by means of a prism. Such influence could be made periodic at will by means of electric relays. I do remember that he acquired a no doubt expensive piece of equipment known as an equatorial head. A picture of his self-made special apparatus whereby semi-circular test-tube racks could be revolved appears in my biography.

”In strict biological terms it is useful to consider just what is the difference between life and death. If one discounts the hand of God and mysticism, it comes down to chemistry and physics. We all know that if electrical stimulation is withdrawn the heart stops, and if physical warmth is withdrawn, one can freeze to death. As ‘global warming’ has reminded us, some living things are extremely temperature-sensitive. Narrowing the argument down to single cells, it seems imperative to learn more about life and death differences. What is it that a living cell is able to offer to bacteriophage and other viruses that a dead cell cannot? However complex, the answer must lie somewhere within chemistry and physics. F.W.Twort would say that it is the latter which has been neglected and the influence of one upon the other. I wonder if it is possible to examine the polarity of a phage, for instance? Surely the time must come when science will be able to mimic the conditions found on the surface of, and within a living cell that viruses find so attractive. I once shocked my mother by suggesting that in years to come perhaps a baby would be grown in a glass jar on the mantelpiece. It was just a flippant joke, but who knows?

”In the case of bacteriophages, if the ‘powers that be’ have a fixed idea that they are of little or no practical therapeutic value, it seems that we haven’t advanced a great deal since d’Herelle’s time. I have to admit that in all my medical career I never heard of phage being used.”

I showed Antony the boxes of bacteriophage ampoules in my fridge that I still have from treating a chronic mouth infection – gingivitis/periodontitis. Exactly which bacteriophages did they contain? The information leaflet was in another language but a microbiologist had checked that they were the right ones for the task. The phages had succeeded for me.

Antony Twort’s memorable quote to share with you and contemplate is this:

**”Phage therapy – it would be criminal to neglect further research into possibilities.”**