PRICEVALUEPARTNERS

Unclean !

"The great tragedy of science, the slaying of a beautiful theory by an ugly fact."

- Thomas Huxley.

Mary Mallon managed to infect 47 people during the course of her career as a cook. Three of them died of the disease. Between 1900 and 1907, she infected two dozen people with typhoid fever. She worked in Mamaroneck, New York for less than two weeks when residents began to succumb. She moved to Manhattan in 1901 and members of the family where she was employed started to develop fever and diarrhoea. The laundress died. She then went to work for a lawyer and managed to infect seven out of a household of eight. In 1906 she moved to Long Island. Within two weeks, six out of eleven household members were hospitalized. She changed employment again and managed to infect three more families. Her fame "is in part due to her vehement denial of her own role in causing the disease, together with her refusal to cease working". We are more familiar with her unofficial name, as 'Typhoid Mary'.

Peter Piot is a Belgian scientist who helped to discover the Ebola virus and helped contain its first epidemic outbreak. In an interview with Jim Al-Khalili on BBC Radio 4's *The Life Scientific* broadcast in 2016, Piot tells the story of the work done to try and stem the tide by small Ebola clinics in Zaire in 1976. At one of these clinics, in a Belgian convent, the mother superior would come in every morning and distribute five needles and syringes to the outpatients department. That would be it for the day. Everybody who came into the clinic on the day in question would be treated with the same needles – the most the medical staff would do would be to flush those needles with water.

As Piot puts it, that basic error in hygiene amounted to "the most efficient way to transmit a virus". In attempting to help the sick, that mother superior in that small central African clinic ended up, inadvertently, killing hundreds of patients – including, presumably, some who didn't even present the early signs of Ebola.

That wasn't the only revelation of the programme in question. Piot goes on to observe how he has become a little more worldly-wise, and quite a bit more cynical, as a result of his experiences in fighting disease:

> I thought 40 years ago that if you've got the evidence, if you've got the science, then the rest will follow. But that's not how society works.

Modern economics has claims to being a science. It is not, in fact, a science at all. Nor can it be, not least because it fails to fulfil the definition of science offered by the one practitioner, perhaps, who more than anyone else helped to popularise science during the 20th Century: Richard Feynman. Feynman's scientific method refers to a process of thought based on integrating previous knowledge, observation, measurement and logical reasoning:

> Now I'm going to discuss how we would look for a new law. In general, we look for a new law by the following process. First, we guess it [audience laughter], no, don't laugh, that's the truth. Then we compute the consequences of the guess, to see what, if this is right, if this law we guess is right, to see what it would imply and then we compare the computation results to nature or we say compare to experiment or experience, compare it directly with observations to see if it works.
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> If it disagrees with experiment, it's wrong. In that simple statement is the key to science. It doesn't make any difference how beautiful your guess is, it doesn't matter how smart you are who made the guess, or what his name is … If it disagrees with experiment, it's wrong. That's all there is to it.

If it disagrees with experiment, it's wrong.

This correspondent would argue that all that ails conventional economics and every tenet of modern central banking and monetary theory does so because it breaks with Feynman's code; furthermore, all these failures can be traced back to one person, the Frenchman Léon Walras, the Ur-Typhoid Mary of modern economics.

When Walras, who had serially failed at every job to which he had previously turned his hand, walked with his father one evening in 1858, he was advised by Walras Sr. to have a crack at "the creation of a scientific theory of economics".

Walras Jr. had previously botched careers in academia, engineering, creative writing, journalism, and banking. That he had been rejected, twice, from France's prestigious Ecole Polytechnique ***due to poor mathematical skills*** tells you everything you need to know about the birth of modern economics.

But Walras Jr. did not give up. Rather, he flunked again. Before Walras, economics had not even been a mathematical field. Eric Beinhocker in *The Origin of Wealth* picks up the story:

> Walras and his compatriots were convinced that if the equations of differential calculus could capture the motions of planets and atoms in the universe, these same mathematical techniques could also capture the motion of human minds in the economy.

In other words, Walras hijacked a bunch of principles from the realm of physics and then misapplied them to a grotesquely oversimplified model of his own economy. Economics (or neo-Keynesian economics) was born out of physics envy.

Walras was not alone. Beinhocker points out that he was "not the only economist during his era raiding physics textbooks in search of inspiration"; the British economist William Stanley Jevons is also cited for 'borrowing' from the theories of gravity, magnetism and electricity in an attempt to turn economics into a mathematical science.

The most notorious episode in global finance would also beget its most notorious economist.

"We have involved ourselves in a colossal muddle," wrote the British economist John Maynard Keynes in his essay 'The Great Slump of 1930';

> ..having blundered in the control of a delicate machine, the working of which we do not understand. The result is that our possibilities of wealth may run to waste for a time – perhaps for a long time.

Economists continue to argue about the causes of the Great Depression. A generally accepted account of its definite origins may never be established. Roosevelt's New Deal is widely credited with engineering a partial recovery in the later 1930s; many today would argue that it was only America's entry into World War II which brought the country conclusively out of the Depression. But certain facts are undeniable. After the Wall Street Crash of 1929 US GDP contracted by 10% in each of the subsequent three years. An economic slump of that magnitude had never happened before and has never happened since. The Keynesian perspective puts the blame for the Depression on a collapse in "animal spirits" that sent the economy into a downward spiral of lost confidence and underconsumption. The monetarist perspective has it that an ordinary recession was exacerbated by policy mistakes instituted by the central banks, notably the US Federal Reserve, which caused the money supply to contract and inflicted grave damage upon the banking system.

Keynes was right to warn about the baleful prospects for wealth. The Great Depression would run on for the best part of a decade.

But words matter, and their meanings matter. Keynes' metaphor of economy-as-machine is not just inaccurate, it's inappropriate. The economy is not some simple machine that can be driven back to equilibrium (an illusory state that doesn't even exist in the real economy). The economy is as complex as human nature because the economy is human interaction on a global scale. ***The economy is us***. And by extension, the financial markets are us, too.

Keynes would be proven right about the slump in wealth. But the 'economy as a machine' metaphor is invalid, just as Walrasian economics is invalid. The great insight of the so-called Austrian economic school, inspired by the likes of Ludwig von Mises and Friedrich Hayek, is that the economy is far too complex to be compared to a simple mechanism. The economy is subject to all of the hopes, fears, frailties and illogicalities of human beings. Good luck modelling that.

Not that it has stopped economists from trying.

A key prediction of traditional economics, for example, is that the economy as a whole must at some point reach equilibrium – a prediction made by both the general equilibrium theory of microeconomics as well as by standard macroeconomics. So how long does it take for the economy to reach that equilibrium ?

> In the 1970s, the Yale economist Herbert Scarf determined that the time to equilibrium scales exponentially with the number of products and services in the economy to the power of four. The intuition behind this relationship is straightforward: the more products and services, the longer it takes for all the prices and quantities to adjust.. if we optimistically assume that *every* decision in the economy is made at the speed of the world's fastest supercomputer (currently IBM's Blue Gene, at 70.72 trillion floating-point calculations per second), then using Scarf's result, it would take a mere 4.5 quintillion years (4.5×10^{18}) for the economy to reach general equilibrium after each exogenous shock. Given that shocks from factors such as technological change, political uncertainty, weather and changes in consumer tastes buffet the economy every second, and the universe is only about 12 billion years old (1.2×10^{10}), this clearly presents a problem.

The essential problem of traditional economics is that it assumes a largely closed system of, in Beinhocker's words, incredibly smart people in unbelievably simple worlds. The reality, as modern commentators tend to agree, is that the economy is closer to being a complex, adaptive, dynamic system – not unlike a living organic being, vulnerable to illnesses and other sudden exogenous outbreaks.

The yin to Keynes' yang is the great Austrian economist Ludwig von Mises. As part of his magnum opus, 'Human Action', Mises wrote about the impossibility of economic calculation in the centrally planned economy:

> The paradox of "planning" is that it cannot plan, because of the absence of economic calculation. What is called a planned economy is no economy at all. It is just a system of groping about in the dark. There is no question of a rational choice of means for the best possible attainment of the ultimate ends sought. What is called conscious planning is precisely the elimination of conscious purposive action..
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> The mathematical economists are almost exclusively intent upon the study of what they call economic equilibrium and the static state. Recourse to the imaginary construction of an evenly rotating economy is, as has been pointed out, an indispensable mental tool of economic reasoning. But it is a grave mistake to consider this auxiliary tool as anything else than an imaginary construction, and to overlook the fact that it has not only no counterpart in reality, but cannot even be thought through consistently to its ultimate logical consequences. The mathematical economist, blinded by the prepossession that economics must be constructed according to the pattern of Newtonian mechanics and is open to treatment by mathematical methods, misconstrues entirely the subject matter of his investigations. He no longer deals with human action but with a soulless mechanism mysteriously actuated by forces not open to further analysis. In the imaginary construction of the evenly rotating economy there

> is, of course, no room for the entrepreneurial function. Thus the mathematical economist eliminates the entrepreneur from his thought. He has no need for this mover and shaker whose never ceasing intervention prevents the imaginary system from reaching the state of perfect equilibrium and static conditions. He hates the entrepreneur as a disturbing element. The prices of the factors of production, as the mathematical economist sees it, are determined by the intersection of two curves, not by human action.

Keynes was looking for a lever to move the economy. But the lever does not exist. The economy as machine does not exist. The metaphor he used is not grounded in objective reality.

If the unthinking addiction to neo-Keynesian economics is one expensive example of the dangers of a bastard science, the unthinking alarmism associated with the prophets of climate change might just be another. Readers who might be interested in a different perspective from that offered by traditional news media may wish to seek out Gregory Wrightstone's book on climate science, *Inconvenient Facts*. Here are just a few:

- Carbon dioxide is not the primary greenhouse gas. (Water vapour is.)
- The warming effect of CO_2 ***declines*** as its concentration increases.
- Our current geological period has the lowest average CO_2 levels in the history of the Earth.
- More CO_2 means more plant growth, more people fed, and moister soil.
- Temperatures have changed on Earth for 800,000 years.
- Interglacial periods usually last 10,000 – 15,000 years. Ours is 11,000 years old.
- The last interglacial period, roughly 120,000 years ago, was 8˚C warmer than today. The polar bears survived and Greenland didn't melt.
- For most of Earth's history, it was c. 10˚C warmer than today.
- Science is not consensus and consensus is not science.
- A recent rise in sea levels began 150 years before the increase in CO_2 levels.

As the Viscount Monckton of Brenchley fairly requests of the climate debate in his foreword to Wrightstone's book,

> ***Audiatur et altera pars***

Let both sides be fairly heard. The difference between the two sides is that, as Joanne Nova points out, the sceptics ***aren't*** asking the world for money or power.

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