



BANK OF ENGLAND

Speech

£50 character selection and Future Forum launch

Remarks given by

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Science Museum, London

Friday 2 November 2018

I am grateful to Clare Macallan and Jennifer Nemeth for their assistance in drafting these remarks and to Lizzie Levett, Emma Sinclair and Toby Davies for providing background information.

It is always a pleasure to visit the Science Museum. Its galleries and exhibitions showcase the rich history of human ingenuity in the sciences, technology, and medicine.

You might think that the Bank of England has little in common with such lofty endeavours, but science spans all aspects of life, extending even to central banking.

Within this Mathematics Gallery alone, there are multiple examples of where the worlds of central banking and science converge.

Take the Moniac machine, which illustrates the circular flow of income around the economy using an assortment of pipes and coloured water.

Or Babbage's Analytical Engine, developed in collaboration with mathematician Ada Lovelace. This precursor to modern computers helped estimate mortality rates, techniques that are still central to underwriting life insurance policies today. The same life insurers that we regulate at the Bank of England.

Among those who are supervising, modelling and policymaking, are the Bank's very own scientists. Almost 10% of colleagues across the Bank have a science or maths degree and 1 in 10 of our graduates starting this year studied chemistry, biology or physics at university.

We very much value the skills and diversity they bring to our efforts, so in a short recruitment pitch, when you 'Think Science', think too of central banking. After all, science starts with curiosity and asking the right questions. Science teaches people to conduct dedicated research and disciplined analysis. These skills and talents make a good supervisor, policymaker or senior leader, and they are the reason that the Bank increasingly recruits from beyond the field of economics.

Not least because scientific advances in Artificial Intelligence and machine learning are reshaping our world, transforming the nature of both work and commerce. This revolution will impact all aspects of the Bank's work, from the future of work, through its effects on employment, productivity and wages, to the future of finance, as the nature of customer service, trading and risk management transforms.

These advances in science and technology are also transforming our focus today – money. They are making digital money more like its physical counterpart – instant, anonymous and direct.

And scientific advances are modernising physical currency, cash, which still has a hugely important role in society.

We use a host of technologies to protect our physical banknotes against counterfeiting. The switch to polymer has allowed us to introduce new security features, including see-through panels, coloured foils and detailed metallic images. Polymer also makes our banknotes stronger, with a lifespan two and a half times that of paper notes, and greener, because they will be recycled when they reach the end of their useful lives. Science means that the costs of producing notes – both economic and environmental – are lower.

This is good for the society; the society that the Bank of England serves; and the society that is reflected on our banknotes. The Bank is committed to ensuring that the nation's money is as inclusive as possible.

Being inclusive means:

- ensuring our notes are accessible to everyone. That's why we have increased the range of features that help the blind and visually impaired distinguish between different denominations, adding tactile dots in the upper left-hand corner. These dots join existing features, such as differing colour palettes, raised print, tiered sizing and bold numerals; and
- being inclusive means an open and transparent approach to decide the characters that feature on our banknotes, by seeking nominations from the public, which can then be considered by an Advisory Panel.

Today, I'm here to deliver on that second objective. Following the success of the polymer fiver and tenner, and the forthcoming £20, last month the Bank confirmed that it will issue a new £50 note.

And this new £50 will need a new character to feature on its design.

I am delighted to announce today that the field from which nominations will be sought for the new £50 note is – if you hadn't guessed by now – science.

Our Advisory Panel chose science in recognition of the United Kingdom's extraordinary scientific heritage.

In the pre-industrial era, the laws of motion and discovery of hydrogen were foundational achievements by UK scientists. They paved the way for future scientific progress – from autos to aerospace – so that present day heroes like Lewis Hamilton and astronauts Tim Peake and Helen Sharman truly "*stand on the shoulders of giants*" [Newton, 1675] and continue the legacy of UK-led innovation.

The invention in the UK of the steam engine, electric motor and telegraph powered the first two industrial revolutions, bringing our world closer together and bringing prosperity to many.

In medicine and biology, the discoveries of penicillin, x-rays and the double helix by UK scientists afforded people healthier and longer lives.

Meanwhile, the creation of the world wide web by Tim Berners Lee brought the sum of human knowledge to the masses in the third industrial revolution. The UK is expanding this frontier in the fourth industrial revolution through the development of Artificial Intelligence with the likes of Demis Hassabis.

Scientific terms like black holes in vitro and Higgs Boson particles are now part of our vocabulary thanks to pioneering UK scientists who have popularised science and brought it into the mainstream. This high regard of the sciences shows up in polls and currency alike. From Darwin to Newton, eminent UK scientists are regulars on top 100 Britons lists and have featured on some of our historic banknotes.

It is this glorious history of innovation and impact that the Bank seeks to celebrate on the new £50.

The new fifty will complement the celebration of literature on the Austen tenner, statecraft on the Churchill fiver, and the arts on the Turner Twenty coming in 2020. With the introduction of the new £50, the nation's banknotes will honour a wide range of UK achievement.

In selecting characters for the nation's banknotes, we are looking for someone from Great Britain or Northern Ireland who has made an invaluable contribution to UK society – be it through pioneering innovation, exceptional leadership, shaping this diverse society and forging its common values. As has always been the case, the Bank will not represent living people or fictional characters on our banknotes. I'm afraid that means Time Lords, of whatever gender, are sadly ineligible, despite their enduring popularity.

In submitting nominations, we are encouraging the public to think creatively and widely about what "science" means. The Advisory Panel will consider individuals from the multitude of disciplines that fall within the general umbrella of science, from astronomy, biology and civil engineering through to zoology, and everything in between.

For further inspiration, the Bank has prepared a [short video](#).

You can submit nominations anytime from today until the nominations period closes six weeks from now on 14 December. The Bank expects to announce a final decision in the summer next year.

We look to history when we chose a new character, but money has a future not just a past.

The selection of the new £50 note character is not my only announcement today... because as I alluded to earlier, money is evolving. Today, it is much more than polymer.

While cash remains invaluable to many, it is now the second most frequent transaction method after debit card payments.¹ And innovation is expected to make other electronic forms of payment easier to make and faster to settle.

The technological revolution in finance will bring more tailored products, keener pricing, and more diverse sources of credit for households and SMEs.

The Bank is embracing fintech and ensuring that it develops in ways that maximise the opportunities and minimise the risks for society.

We aim to enable, empower and ensure.

¹ Cash transactions made up 37% of all transactions in 2017.

Enable new technology by developing the right environment for fintech to thrive, such as by upgrading the Bank's hard infrastructure on which finance relies – such as our large value payments system, RTGS. The Bank is one of the first to allow non-bank payment service providers to directly access its system, something that is lowering the costs of payments across borders.

Enabling also means having the right soft infrastructure, such as rules and regulations, to help fintech thrive. This includes improving how we capture data from our hard infrastructure in a consistent and usable form while ensuring privacy.

We must also empower new providers to promote competition by lowering barriers to entry through proportionate supervision and assuring a level playing field in access to our hard infrastructure.

Finally, we continue to ensure these new technologies add diversity and resilience to the financial system.

How we enable, empower and ensure is the focus of the Bank's Future of Finance work. Just as with the £50, we are soliciting the UK public's contributions to "decide the future of money" through Bank's Future Forum.

We want to know how you make payments now and in the future (with cash, by card or through a QR code?) What do you expect from finance and the financial system? And we want to discuss how your central bank can make this happen.

This is the Bank's third Future Forum, following events in Liverpool last year and Birmingham the year before.

We are taking a digital approach this year, hosting it on-line so that we can reach a wider audience, engaging with people from all backgrounds across the UK.

Throughout the Forum, you can log on to the website to ask questions, post ideas and challenge us. We will be hosting live on-line Q&A sessions with each of the Bank's Governors, starting with Dave Ramsden, Deputy Governor for Markets and Banking, on 5 November. We're launching a payments challenge – limit payments to either cash or card for a week and tell us about your experience and the challenges faced. And school children will have the opportunity to win a guest blog slot on Bank Underground and enter the Bank Camera Action Competition.

The Forum will run until 16 January 2019, culminating in a roundtable discussion between the Governors and members of the public drawn from the most engaged users of the platform. This will be live streamed to all. People can find out more, register their interest, and join the conversations on the Bank of England's website.²

² To register please visit www.bankofenglandfutureforum.co.uk or email futureforum@bankofengland.co.uk.

To conclude, let me go back to the future, returning to the character field for the £50 note. To sift through the public nominations and help decide the final character, the Banknote Advisory Panel will be joined by four new scientists, Dr Maggie Aderin-Pocock MBE, Dr Emily Grossman, Dr Simon Singh MBE, Professor Simon Schaffer.

I'm pleased to welcome one of these scientists here today. Maggie Aderin Pocock, space scientist and familiar voice from the BBC's Sky at Night, has been a long-term advocate of engaging the public in science, having presented to a quarter of a million people throughout her career (with science it's all about numbers).

Thank you Maggie for donating your time to this important task. We will benefit greatly from your expertise on the Banknote Advisory Panel. So without further delay, let me hand over to Maggie to give you a scientist's perspective on the importance of...science.