Are pictorial statistics still appropriate for use in projects involving public decision making?

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This presentation will review a series of social policy campaigns from the 1940s that use pictorial statistics to explain key facts. Its aim is to establish whether this form of graphic explanation still has resonance today. The starting point for the argument was the confusion caused by the barrage of conflicting information presented to the British public for the June 2016 European Referendum on banners, buses and through a leaflet sent to every UK household. Debate was also prompted by the current trend for McCandless style pastel coloured infographics which proliferate today – which begs the question of why the UK Government did not pick up on this popular form of graphic communication (or indeed any form of visual statistics) to reinforce their message that the UK would be better off remaining within the EU.

Published material such as the UK Government's 1943 *Social Security: The Story of British Social Progress and the Beveridge Plan* and *Social Insurance: Including Industrial Injury Insurance: Brief Guide to the Government's Plan* booklets (both visualized by the Isotype Institute) will be discussed along with the 1945

County of London Plan (by E.J. Carter and Ernö Goldfinger). American New Deal policy documents explaining the Works Progress Administration (WPA) from the same era, many using charts designed by Rudolf Modley's organization, 'Pictorial Statistics Inc'. will also be presented as examples of campaigns that used pictorial statistics to support government policy, rally and inspire the nation. These projects will serve to highlight issues of implied trustworthiness, integrity and clarity in the graphic explanation of important social policy documents.

EU Referendum political party bus campaign messages

EU Referendum publicity

The EU Referendum was characterised for many by a parade of buses with bold graphic messages containing opposing sensationalist claims which toured the UK – some advocated 'Remain' and some 'Leave' Europe. Perhaps the most outspoken message came from Boris Johnson, who unlike the majority of the Conservative party (but along with UKIP) was suggesting 'Leave' so that the £350 million we allegedly send to the EU monthly could be rechannelled into the overstretched National Health Service. Labour, like most of the Conservatives backed the 'Remain' stance so even political parties were not sending out clear consolidated messages. To get a more rounded picture of what information was available, HM Treasury (and what they were publishing on the official UK Government website) was consulted. This quote is taken from there:

'HM Treasury analysis on the EU referendum shows that a vote to leave would mean Britain would be permanently poorer. Gov.uk HM Treasury website facts published 18 April 2016 clearly states Britain will be worse off by £4,300 per household if Britain votes to leave, European Union new analysis by HM Treasury shows'. www.eureferendum.gov.uk

Gov.uk Treasury banner

The website also contained statistical data written clearly and simply and the banner shown above. How much more clearly could an undecided voter be targetted? But how do you define the term 'household'? By the time this banner was published it merely joined a plethora of other big banner messages and was almost invisible.

Pages from the EU Referendum leaflet

The official UK Government booklet for the EU Referendum reassembled the type of design favoured by a high street bank. It consisted of neat sans serif black type on a white background with full bleed images and captions in box rules. The imagery was idealised and tried to emulate real people – but it failed miserably with stereotypical images of clean-cut factory workers, a stylish woman shopper, an Asian family sitting in their smart kitchen and a young white family almost walking into the sunset. The message was polite. 'The Government suggest…' I kept my copy, but I suspect most of them swiftly ended up in the recyling bin.

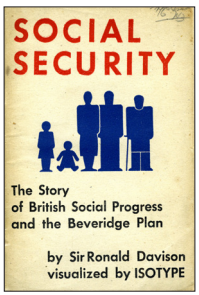
But buses, booklets and banners are of little significance when we look at what has allegedly been happening in cyberspace. Did the Russians use Cambridge Anayltica to influence Trump's victory in the US election because Putin disliked Hilary Clinton so much? Does this propagandist rigging skew everything and make the concept of truth an anathema? Has the power of social media negated our trust for any official government information? And were subtle social media interventions used to push the UK vote to leave the European Union? Do we trust social media over print, buses and billboards? And did our ancestors really trust government literature in a way that we don't find possible today in our cynical, overcrowded world full of complex news feeds and platforms for social comment? Of course life is much more complicated than it was during the 1940s – or is it?

The EU Referendum results shocked many as Brexit became a reality with 52% of the UK population voting to leave Europe – which does not take into account the 12.9 million people who did not bother to vote. It left the country divided with distinct regional voting patterns, which can be loosely based around perceived levels of education and prosperity. Inflated reports surrounding immigration fueled a rise in nationalistic tendencies, engendered racial distrust and made many European citizens working in the UK feel unwelcome.

It is at this point that I would like to introduce the notion of the Isotype transformer – one of the original methodological principles of Isotype. According to Marie Neurath, the task of the transformer was:

'To understand the data, to get all necessary information from the expert, to decide what is worth transmitting to the public, how to make it understandable, how to link it with general knowledge or with information already given in other charts. He has to remember the rules and keep to them, adding new variations where advisable, at the same time avoiding unnecessary deviations which would only confuse'.
Marie Neurath, 'Isotype' *Instructional Science*, 3 (1974).

Could a present day transformer still manage to guide us towards the truth and help make things more comprehensible? If they did, would we believe them, and is there still a role for the transformer in society today? The transformer's role of 'trustee of the public' was a responsible position requiring great integrity. Primarily, it was their job to understand the data and turn it into reliable unbiased information, allowing the audience to draw their own conclusions. The integrity of the information and the audience was respected above all. The wartime publications shown in this presentation make use of charts designed using Isotype, a UK imitator and its American equivalent.

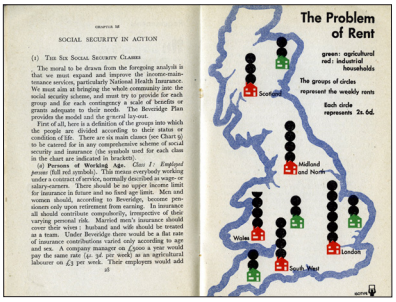


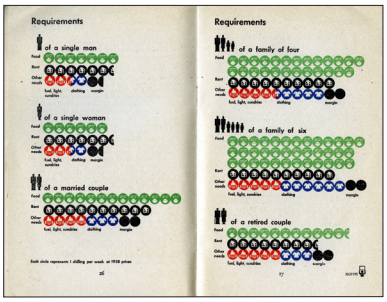
Social Security (1943) *Social Insurance* (1943) *County of London Plan* (1945)

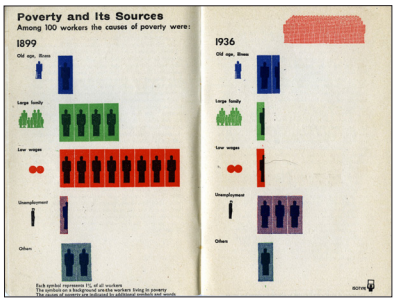
Isotype (originally known as the Vienna Method) was developed for use in the Gesellschafts- und Wirtschaftsmuseum (G&W) in Vienna, where Dr Otto Neurath and his small but talented team were tasked with educating and informing the war-weary, displaced population about health, hygiene and social issues. Social education was desperately needed due to the high levels of poverty and low rates of literacy – a complex task, when, as Neurath stated *'highly developed industry and modern administration require a certain minimum of education of all citizens' [...] 'even passers-by [...] can acquaint themselves with the latest sociological and economical facts at a glance'*. The museum was designed to promote clear thinking and easy recall, enabling visitors to make comparisons and correlations between economic, geographic, historical and sociological subjects. Neurath promoted Isotype with the full knowledge that the principles he had devised during the mid 1920s were applied with the utmost integrity and fitness for purpose.

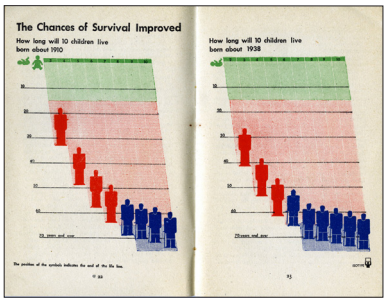
The style of wartime austerity

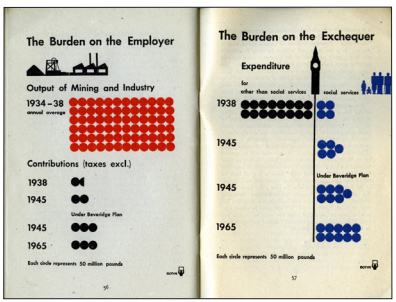
Wolfgang Foges was a pioneer of book packaging in the UK and set up Adprint in 1937. Book packaging can be described as the process whereby books are designed, printed and sold on to publishers who publish them under their own banner. Foges printed large quantities of books overprinted in different languages which he sold on in many editions. By pooling resources and collaborating with many partners, he was able to handle very large print-runs making his books both attractive and economical to sell on to both UK and international publishers. He was also adept at locating precious rationed wartime paper supplies. Foges championed, supported and profited from the work of the Isotype Institute, and it could be said that he was responsible for giving Isotype its associations with what we now think of as sober wartime graphic design through the many charts which

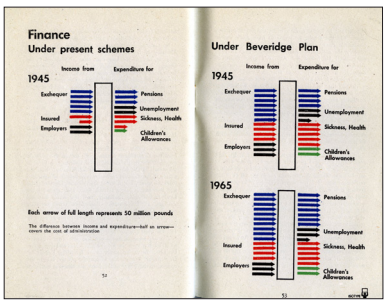


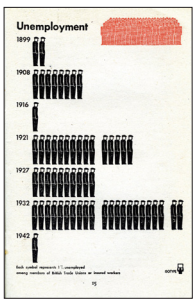


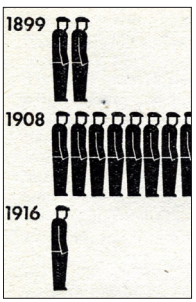






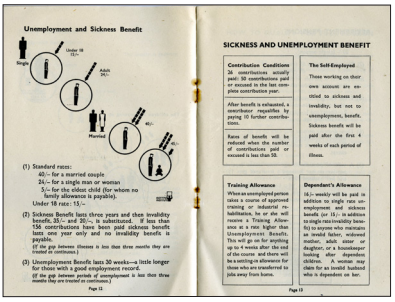


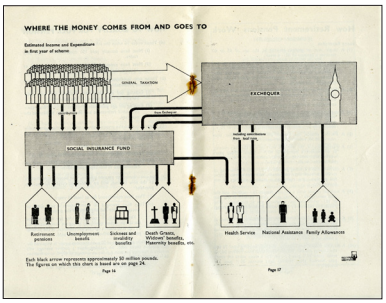


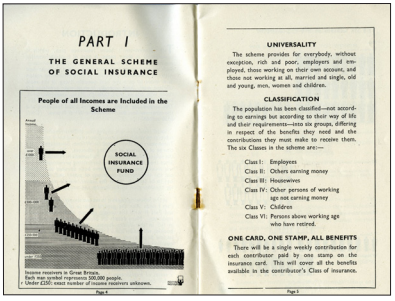


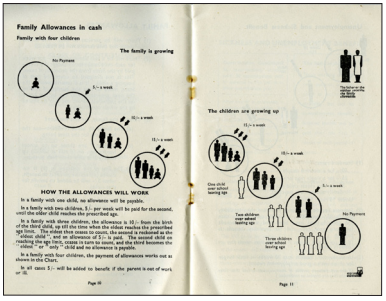
Pages from *Social Security* (1943) and detail to show Gerd Arntz's unemployed man symbol

he commissioned to appear in the many wartime publications published by Adprint, many for the Ministry of Information. The 1943 *Social Security* and *Social Insurance* booklets, are two examples, but there are many others which also use Isotype charts which endorse the wartime atmosphere of austerity but also tacitly

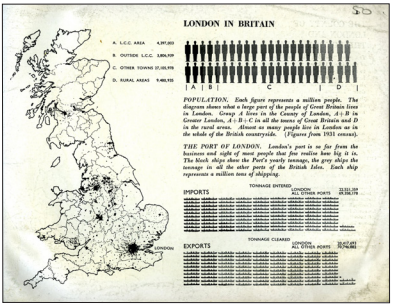


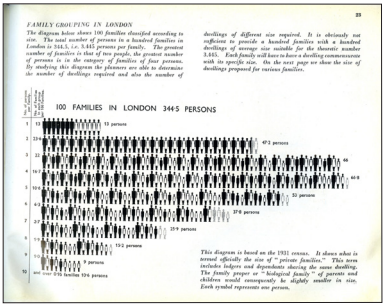






Pages from *Social Insurance* (1943) *above* and *County of London Plan* (1945) *below*

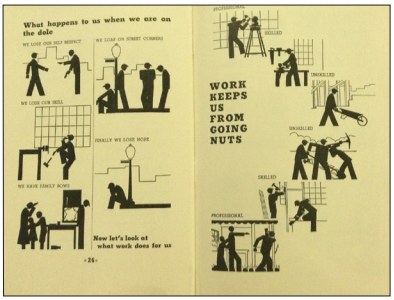


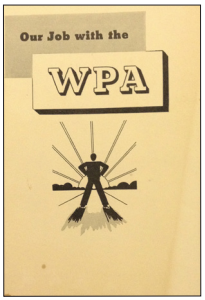


imply truth, integrity and unity (see the 'New Democracy' series *Battle for Health* by Stephen Taylor (1944), *Women and Work* authored by Gertrude Williams (1945) and the 'America and Britain' series *Only an Ocean Between* (1943) and *Our Private Lives* (1944) both authored by Lella Secor Florence. Isotype captured the spirit of an age by communicating with the wartime public clearly and effectively in publications promoting social knowledge and health.

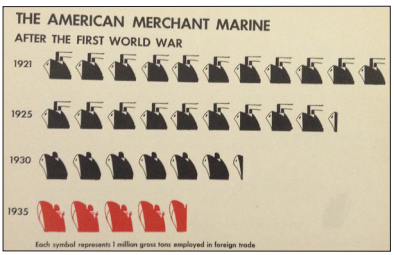
The County of London Plan (published by Penguin Books Ltd in 1945, explained by E.J. Carter and Ernö Goldfinger) also picks up on this genre of pictorial statistics, but the charts were clearly not designed by the Isotype Institute – although they make use of the Isotype hall-mark repeated symbols to show quantity, they fail to apply the rest of the principles of Isotype and the result is a reduction in clarity.

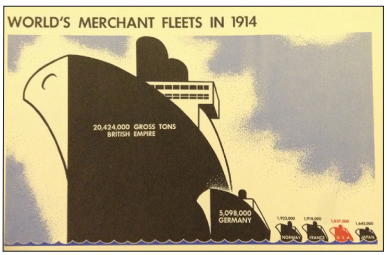
American New Deal publications for the Works Progress Administration (WPA)
Rudolf Modley adapted Isotype to configure his own version of pictorial statistics in the USA during the 1930s and designed many charts for the New Deal Programme which President Franklin D. Roosevelt set up in 1933 to encourage state and national government organizations to co-operate by activating industry, increasing purchasing power and helping US citizens find employment. The booklets below are examples of the type of pictorial statistics that were being produced during this time. They can be found at the Wolfsonian Museum archive in Miami and show how Modley helped to get ideas of national solidarity across.

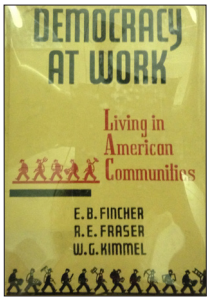


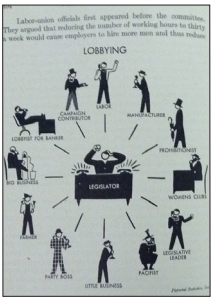


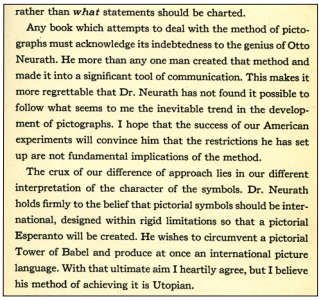
Our Job with the WPA (1937) *above* and *America Builds Ships* (1940) *below*











rather than *what* statements should be charted.

Any book which attempts to deal with the method of pictographs must acknowledge its indebtedness to the genius of Otto Neurath. He more than any one man created that method and made it into a significant tool of communication. This makes it more regrettable that Dr. Neurath has not found it possible to follow what seems to me the inevitable trend in the development of pictographs. I hope that the success of our American experiments will convince him that the restrictions he has set up are not fundamental implications of the method.

The crux of our difference of approach lies in our different interpretation of the character of the symbols. Dr. Neurath holds firmly to the belief that pictorial symbols should be international, designed within rigid limitations so that a pictorial Esperanto will be created. He wishes to circumvent a pictorial Tower of Babel and produce at once an international picture language. With that ultimate aim I heartily agree, but I believe his method of achieving it is Utopian.

Rudolf Modley's criticism of Otto Neurath from *How to Use Pictorial Statistics* (1937) *above*

Democracy At Work (1930s) *above left* and *Half A Million Forgotten People* (1940s) *left*

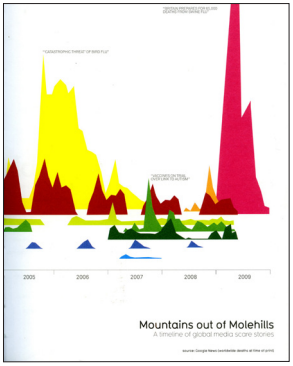
How did Modley's version of pictorial statistics differ from Isotype?

Modley's adapted version of Isotype produced by his company 'Pictorial Statistics Inc.' had less rigid rules, was much less pared down and more decorative – sometimes verging on illustration. He used repeated symbols to show quantity and comparison, but he also used increased surface area. Modley retained the principals of explaining information simply and appealing to the general public which gave him the opportunity to connect with a client base explaining social policy in 1930s and 1940s America – particularly government agencies which lead to his commissions for the Works Progress Administration (WPA). The question of whether new pictographic systems should be designed based on style and national characteristics or whether they should become part of a strictly controlled universally recognized system preoccupied both Neurath and Modley during the 1930s. The extract above from Modley's 1937 book *How to Use Pictorial Statistics* says it all. He adapted and softened his criticism of Neurath in the 1952 update of his book (co-authored with Dyno Lowenstein) *Pictographs and Graphs: How to Make and Use Them.*

Infographics

Moving on, and in an attempt to connect McCandless style infographics with the pictorial statistics from the 1930s and 1940s, it is necessary to define where the term infographics originated. It has been around a long time (Henry Dreyfuss used it in the 1970s when he was publicising his *Symbol Sourcebook*). But infographics remains hard to define, and today is used to describe almost any explanatory graphic chart. During the first decade of the 21st Century infographics was often seen by UK academic information designers as a term of abuse, however in

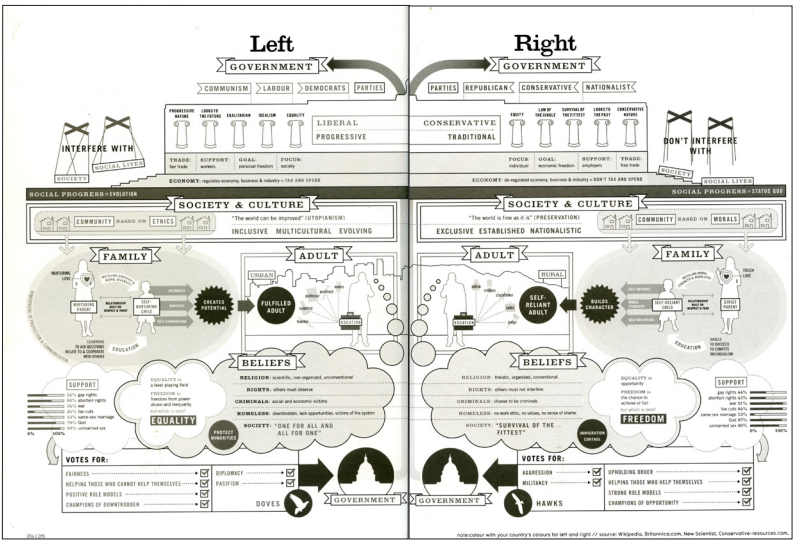
Europe and USA it was just another word for information graphics – ways to present information visually – originally synonymous with newspaper *USA Today* which received criticism for oversimplifying news and emphasizing entertainment over respect for content and data. Subsequently a group of designers such as Nigel Holmes, John Grimwade and Lust in the Netherlands championed the term.



Cover and pages from *Information is Beautiful* (2009) *left and below*

The McCandless style of infographics

Information is Beautiful was published by David McCandless in 2009. It was followed by many other books in a similar vein i.e. *Facts are Sacred* by Simon Rogers of *The Guardian* newspaper (2013) and *The Infographic History of the World* by Valentina D'Efilippo and James Ball (2013) and *Knowledge is Beautiful* by David McCandless (2014), to name but a few. The graphic style used in these books is now ubiquitous, they are popular and the often pastel colour scheme and 'light' approach to information has created the genre of infographics for a general audience. But would McCandless-style infographics have been appropriate for



the UK Government's EU Referendum publicity material? The answer is a firm 'no'. According to Charles Kostelnik in his 2016 paper 'The Re-Emergence of Emotional Appeals in Interactive Data Visualization' new forms of data design (such as the McCandless style) have 'elicited emotions ranging from excitement and empathy to anxiety and fear'. Kostelnik states that emotional appeals can be achieved using colour and novelty, as well as interactivity and personalisation. Warm colours, excite, cool colours sooth. This may explain the use of colour and often glib superficial motifs in *Information is Beautiful*.

Kostelnik also suggests that emotional elements can distract and corrupt the data – the effect can be immersive – but if you can't remember the point, the chart fails. He also claims that the seductive quality of data can be dangerous. But should we separate reason from emotion? And should we inhibit our perceptual integrity? Katherine Hepworth in her 2016 editorial 'Big Data Visualization: Promises and Pitfalls' suggests that audiences can be moved emotionally, but puzzled about functionality – can the emotional take over from the rational? Emotional appeals containing intriguing illustrative elements were prevalent in 19th century 'golden age' of statistical graphics when William Playfair, Joseph Minard, Charles Booth and Florence Nightingale were active. Modernist minimalist ideas had attempted to banish elements of emotion from design. Isotype is often stated as being part of this Modernist canon, but the humanising effect of Gerd Arntz's drawing skills cannot go unnoticed; his symbol for the unemployed man exudes humanity, pride and humility, it certainly does not distract, but serves to reinforce the message. E.R Tufte was quick to label design using elements of emotional appeal 'Chart Junk'. Explanation designer Nigel Holmes came under Tufte's line of fire for this, which Kostelnik described as 'bombastic hype aimed at perking up listless readers'. This type of work can be more poetic than functional, but as designers, we need to responsibly consider the effect our visualizations have on our audiences.

Conclusion

Hidden behind the simplicity of the graphic argument of Isotype is the rigour of the transformer, who carefully orders information to make it immediately accessible; doing the hard work so the audience doesn't have to. The transformer's job was to allow the audience to simply deduce facts for themselves and form their own opinions based on well-constructed, visually significant statements. A modern day transformer would responsibly know how far to go with data visualization, so it was meaningful, not too decorative and allowed functionality to triumph over decoration.

It is testimony to the popularity of Isotype during the 1940s that it was used to design important publications explaining the new Social Insurance and Social Security schemes to the public. Isotype attempted to be utilitarian without gratuitous appeals to emotion – thanks to the integrity of the transformer. Perhaps if the EU Referendum campaign had contained McCandless style pictorial statistics it could have been more emotionally persuasive – but it may not have been perceived in the right emotional context, decoration might have won over functionality; and we still may not have been able to understand the overall message.

Perhaps also, the reason why Government publicity material didn't use pictorial statistics was because of the uncertainty of the situation regarding Brexit. Other sources of information, which may have allowed the public to have a more reasoned view prior to voting were available, but not presented. However much anyone can speculate, we still don't really know what the economic costs are – so visual statistics couldn't accurately be utilized.

'Certainly the Isotype signs are dependent on their times like all these old sign-languages. Later times will see what their special qualities are and what the conditions were which made them.' Otto Neurath, *International Picture Language.*

Visually Isotype can only be considered from a historical perspective – its graphic language is too simple for our contemporary sophisticated graphic taste, which is based around visual metaphors, word and image associations and a huge variety of graphic language. Today we expect more from Isotype than it was designed to give. But in its time, Isotype did engender trust, integrity and clarity in an age of austerity. This ultimately begs the question could an adapted style of visual statistics signal trust today as it did in the 1940s? Do we need an officially recognised graphic standard to signal whether information can be trusted?

Finally, consider this thought-provoking article:

'This is Britain in 2017. A Britain that increasingly looks like a "managed" democracy. Paid for by a US billionaire. Using military style technology. Delivered by Facebook. And enabled by you. If we let this referendum result stand, we are giving it our implicit consent. This isn't about Remain or Leave. It goes far beyond party politics. It's about the first step into a brave, new, increasingly undemocratic world.' 'The Great British Brexit Robbery: How our Democracy was Hijacked'. Carole Cadwalladr, *The Observer* Sunday May 7 2017 (from *The Guardian* website).

We need to bring back the transformer – to support more informed, truthful, considered, sustainable ways of living together in the future.