The Man in the White Suit

Science in British Film in the 1950s

Peter Morris, Blythe House, 14th April 2011

Themes

- Sidney Stratton himself
- Image of science in the film and the laboratory
- Image of scientists in the film
- The actual experiment
- The white suit
- Lone inventor or corporate cog?
- British textile industry in the 1950s
- Industrial innovation in the 1950s
- British public and science in the 1950s

Sidney Stratton

- Almost child-like figure, e.g. the sword scene
- Obsessed with his experiment
- Optimistic and determined, but mild-mannered
- Other-worldly, has no concern for the impact on wider society or even his own material gain
- For what then? Fame? Social benefit?
- Outsider, has no wife or family marginalised within the company and society, neither middle class or working class
- Rapport with the boss's daughter only highlights his isolation

Geoffrey Pyke

- Stratton is similar in some ways to the eccentric British inventor Geoffrey Pyke
- Not a trained scientist but became an important technical adviser to government
- Similar child-like qualities and obsessions, but polite and unassuming
- Also lonely as his wife left him
- While he was determined he also suffered from depression, committed suicide
- Very much concerned about society unlike Stratton

Image of Science in MWS

- Threatening (musical motif)
- Remote
- Industrialised, corporate
- Concerned with its own outcomes not society
- Dangerous (frequent explosions)
- Linked to power, the power of explosions and the power science can give even to a marginal figure like Stratton
- More like atomic physics than textile chemistry

Image of Scientists in MWS

- Subordinate, subservient and relatively marginal
- Dedicated and enthusiastic (but at what cost?)
- Part of the industrial system
- But also separate from the rest of the factory
- This is actually a fairly realistic picture in this period
- Puzzle of the brown lab coats, scientists wear white coats, warehousemen brown coats – intended to bridge Stratton's two jobs?

Icons of Science in MWS

- A film needs such icons to flag up “this is science”
- Classical chemical glassware and bubbling flasks
- Kipps apparatus at home (familiar from school)
- Electron microscope as symbol of the new electronic science—very few in British industry at this time
- By contrast the man using a microscope is a symbol of the old industrial chemistry
- Textile science represented by skein winder in background

The Laboratories in MWS

- The laboratories are not the classic academic chemical laboratories cluttered with apparatus and bottle racks
- Nor are they the alchemical dens of horror films
- They are relatively bare large open rooms, which are industrial as much as scientific
- This is typical of textile laboratories in both academia and industry
- Compare the academic textile lab with the industrial chemical lab…

Technical Accuracy

- We can thus see that the film is pretty accurate from a technical viewpoint re. the labs
- This is true of other details of the film such as Stratton talking about amino acid residues and the Hilger photometer behind the curtain
- Geoffrey Myers was the official advisor but he worked for Lord Sherfield at UKAEA and had no textile background
- Advice of John Speakman and his Department of Textile Chemistry at Leeds may have been more important
- However as we will see this technical accuracy does not apply to the actual experiment

The actual experiment (1)

- Standard film image of chemistry: white vapour, bubbling liquids and lots of glass tubes
- White vapour/bubbling produced by dry ice
- Circular tube strangely like the Toronto arc which produced a bright light for spectroscopy
- It is indeed “fired” during the experiment but it is completely different from this experiment
- Perhaps helical shape was intended to suggest the helical structure of fibres

The actual experiment (2)

- Production of the fibre material would involve polymerisation, brought about by a catalyst, not an explosion!
- For a chemist the explosions are the most bizarre part of the film but allows science to presented as disruptive
- One “firing” scene is almost like the Blitz
- Apparently Mackendrick did strive for accuracy in the apparatus as elsewhere in the film but I am not sure he achieved this
- Eerie throbbing musical theme, partly like a warning (unexploded bomb) but also like a heart-beat hinting at something living Based on Jazz music and a drip-drip-bubble theme (kind of hubble-bubble cauldron)

The White Suit

The white suit has several aspects:

- It is a synthetic fibre
- It is undye-able (hence it is white)
- It is (seemingly) indestructible
- It cannot be dirtied (unsoilable)
- It is white to the point of glowing in the dark
- It has a hidden flaw

Let’s consider all these aspects

Synthetic Fibre

- The early 1950s was *the* period of synthetic fibres
- Du Pont created nylon in the mid-1930s but it was not readily available in UK until c. 1950
- British Nylon Spinners factory set up in 1948
- Polyester fibre (Terylene) was a British invention
- First made at Calico Printers Association in Manchester in early 1940s (close parallel) and commercialised by ICI
- ICI Wilton Terylene factory set up in 1950

Synthetic Fibre Competition

- These synthetic fibres including the earlier viscose and acetate rayon were money-spinners In the 1930s, the Courtauld subsidiary American Viscose Corporation was one of the most profitable companies in the world
- There was fierce technological competition
- Du Pont made nylon 66, IG Farben responded with nylon 6 and ICI with polyester (Terylene)
- After the war, Bayer countered polyester with acrylic fibres

Synthetic Fibre Manufacture

- These synthetic fibres were produced by polymerisation, a chemical process, followed by conversion into a liquid by melting or dissolving in a solvent
- This liquid is then push through a spinneret to produce a filament, which is stretched and then spun into a thread
- These processes (apart from the first one) are faithfully reproduced in the film

Undye-able Fabric

- Natural fibres (cotton, wool, silk, linen) have specific chemical sites that dyes can attach themselves to; most synthetic fibres lack these sites
- Even viscose rayon, the semi-synthetic version of cotton invented in the 1890s was difficult to dye
- Acetate rayon and polyester were the worst
- One has to take a insoluble dye (pigment) and physically force it into the fibre itself to form a dispersion of the dye within the fibre material, for example with nylon one boils the fibre with a insoluble azo dye – this limits the range of colours available

Indestructible Fabric (1)

- The indestructibility of Stratton's fibre is shown in various ways in the film and of course is the crucial problem for the textile industry
- Nylon in particular is enormously strong compared with natural fibres and this strength is often used in nylon monofilaments
- Indeed 100% nylon clothes were practically indestructible – in the 1970s I had nylon socks that lasted for 15 years or more, and then they became baggy rather than worn

Indestructible Fabric (2)

- The textile industry has solved the problem (deliberately or not) by only producing synthetic-natural mixtures My current nylon-cotton socks now only last for three or four years before developing holes
- The issue of built-in obsolescence and the suppression of indestructible products (e.g. ever-sharp razor blades) has long fascinated the public and never more so than in the 1950s when new inventions appeared almost daily

Unsoilable Fabric

- The fact the fabric cannot get dirty and thus saves on washing is central to its social value
- This seems implausible but all completely synthetic fabrics, especially nylon, are to a degree unsoilable, they cannot be stained in the same way as cotton or wool This is fortunate as they could not be boil washed which would break them down In the pre-enzyme era heavily soiled fabrics (e.g. nappies) were usually boil washed
- Together with their ability to dry quickly (drip-dry) they had most of the social benefits claimed for Stratton's fibre

The Whitest White

- The above title is a modification of a Daz washing powder advert from the 1950s and some scenes from the film are exactly like washing powder adverts of the period (however British TV adverts did not start until 1955) Whiteness was prized in clothes and table linens
- These washing powders used fluorescers (or optical brighteners) to make clothes appear more white They had been developed in Germany and introduced after 1945 *A*lmost certainly added to the white suit to make it glow in UV (it was made from wool and possibly rayon, so-called sharkskin often used for tropical wear)
- Link between the glowing suit and radioactivity

The Hidden Flaw

- Clearly the fabric's hidden flaw is a Deus ex machina, needed to defuse the film's core crisis quickly similar to the death of the Martians from bacterial infection in 'War of the Worlds'
- Yet it is not completely far-fetched Not all synthetic fibres were successful ICI developed Ardil, a synthetic fibre based on groundnut (peanut) protein It was a good wool substitute but could not be bleached white (the opposite of here) and it broke up when washed (poor wet strength to use the technical term)

Lone Inventor or Corporate Cog?

- Stratton is presented in some summaries of the film as being a lone inventor This is a common motif: lone inventor against the system
- While his idea is clearly his own, he is not following the firm's own research agenda, I would argue this is a mischaracterisation
- He does the research at work, not at home despite having chemical apparatus in his room
- Crucially, without the firm's fibre-producing machine, the white suit could not have existed

Textile Industry in the 1950s

- The British textile industry was a critical position in the 1950s Partly because of the war, it had failed to modernise and was still often run by the founding families It was also highly unionised The threat from aboard was mostly economic but the scientific threat here (from firms such as ICI) has the same effect
- The Labour Government had set up the Cotton Board to modernise the industry To this end the Board produced several films (e.g. in 1946 ‘Cotton Come Back’ and ‘Science Joins an Industry’) echoed in this film
- So this film also shows the industry opposing progress as represented by Stratton and his suit

Industrial Innovation in the 1950s

- The film also taps into the debate about industrial research in the 1950s Should traditional British industries use science and technology to revolutionise what they do? Should technological progress be viewed as a potential advantage over Britain's competitors or as a threat to be opposed?
- The managers usually lacked a scientific or technical background (in contrast to Germany) and were often appointed because of who they were rather than how good they were They were therefore resistant to new ways of working, a resistance shared by the equally conservative (with a small c) trade unions

The Public and Science in 1951

- Why would the public be concerned about science in 1951? Some of today's concerns such as pesticides lay in the future But there were two major issues One was nuclear weapons—the Soviet Union had exploded its first atomic bomb in August 1949—and scientists were blamed for not seeing the outcome of their nuclear research It had in fact been Mackendrick's intention to deal with atomic energy in the film, not synthetic fibres
- The other concern was technological progress putting working people out of jobs and this of course was the issue in this film, although robots and computers still lay far into the future Synthetic materials displacing natural ones (e.g. rubber) was one of these concerns

Festival of Britain, 1951

- Yet paradoxically 1951 was also the year of the Festival of Britain with its Dome of Discovery and the satellite ‘Exhibition of Science’ at the Science Museum itself Scientific motifs dominated 1950s design Science was part and parcel of the new Modernity
- Against this background, Stratton can be viewed as a bold innovator misunderstood by the powers that be, just as Mackendrick felt he was put down by the film’s producer Michael Balcon
- So science and scientists were seen as the wave of the future by many people if not Mrs Watson But the “Exhibition of Science” also displayed robotic tortoises….