

Exploring Science Perceptions through Science Fiction

Elizabeth R. Stanway (University of Warwick, UK)
 contact: e.r.stanway@warwick.ac.uk

Public perceptions of scientific understanding are most often mediated through indirect channels - including outreach efforts of scientists, news media and fictionalised scenarios in the form of science fiction.

At its best, science fiction provides a powerful tool for widening awareness of and public engagement with aspects of scientific innovation - in particular in astronomy. At its worst, it can distort or entirely misrepresent scientific understanding or the nature of scientific enquiry. Either way, it provides an interesting historical record of the way astronomy and its discoveries are being represented to the public at a point in time - in particular to the children of the past who are the decision makers of the present.

Here, I discuss representations of our Solar System and the science of astronomy in historical science fiction narratives and what they tell us about the way both understanding and communication of knowledge about our Universe has changed over time.



***The Day the Earth Caught Fire* (dir. Val Guest, 1961)**

Lesson by James Chester, Teach First

**Sciences,
Key Stage 3**

Use a classic science fiction film to explore scientific ideas. Take up the role of a science journalist for the Daily Express while watching the film, with different assignments throughout.

This could be used as a single lesson where you can pick what activities to complete or include, or as a set of lessons spanning lots of different science skills/knowledge. It would work well for revision purposes, and each task can be made simpler/more complicated to suit the individual needs of each class.

Lesson Objective

- Explain how the phenomenon of sunspots occurs and what effects it may be having.
- Explore the pros and cons of nuclear power.
- Describe how mains water is collected and produced.

You will need...

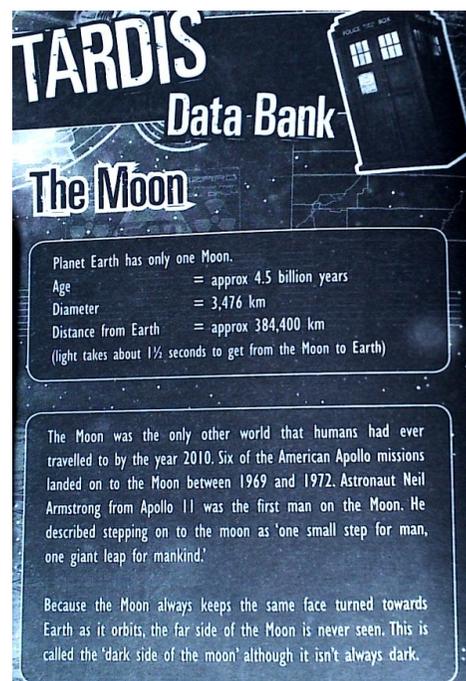
The Day the Earth Caught Fire DVD

Above: Examples of science fiction used for science outreach, including “science of” books, television programmes and websites (e.g. <https://www.bfi.org.uk/resources-events-teachers/resources-teachers/sci-fi-classroom>).

The relationship between the long-running UK television series Doctor Who (1963-present) and scientific method has been explored in the recent volume *Doctor Who and Science* (eds. Harmes & Orthia, 2020). Unusually, this is not a “Science of” book, but rather an accessible series of academic papers on the relationship between Doctor Who and aspects of scientific knowledge, practice and identity.

Two essays have been contributed by astronomers: Eldridge on Exoplanets, and Stanway on Earth’s Moon. Both consider representations on screen in the context of historical and modern research.

Representations of the Moon in Doctor Who have ranged from its use as a political prison to proposing that it is a giant alien egg. Setting aside the more extreme of these, the most common explanation of the Moon’s nature in the show was introduced in the 1973 story “The Silurians”: the Moon is described as a captured planetoid which arrived in orbit around Earth during the reign of the dinosaurs.



The ups and downs of Doctor Who’s Moon. Left: Accurate factual information provided in children’s adventure book “The Dust of Ages” (Richards 2009). Below: The Twelfth Doctor explains that the Moon is, in fact, a giant egg in one of the most scientifically illiterate Doctor Who stories (“Kill the Moon” 2014)



This representation shows the use of science fiction for science communication at both its best and its worst: when first broadcast it was based on a then current astrophysical research paradigm. When repeated as series-specific canon in the decades since, it has been misleading for young audiences. Indeed, some supporting tie-in media have been actively anti-scientific in their support for this scenario, presenting the fiction as if it were undisputed fact.

Dan Dare: Pilot of the Future was a comic story which debuted in the first edition of *Eagle* comic in 1950. Across full-page spreads, Dare and his colleagues explored our own Solar System and beyond, while battling the plots of the villainous Venusian, The Mekon. In every decade since, *Dan Dare* has been adapted or reimagined for new audiences, providing a seventy-year baseline of representations of Solar System habitability.

Dan Dare's Venus

Illustrated before the first successful probes, Dare's world captures an earlier conception of Venus – a young, hot, water-rich jungle planet that can also be found discussed in astronomy textbooks of the time. A 2017 audio drama adaptation by B7 Media Productions jettisons this in favour of floating cloud cities and no native life forms.



Image: Lush jungle representations of Venus were common in the 1950s. From *Eagle* #24 (1950, Titan books reprint)

Biosignatures as discussed in 1952

Lewis Jewell (AJ, 1, 11) proposed searching Mars for a chlorophyll biosignature as early as 1895, and intensive observations with this goal were made during the opposition of the 1930s.

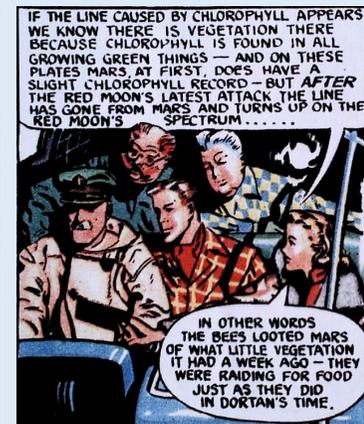


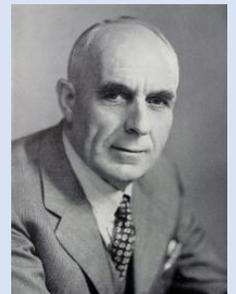
Image: Professor Peabody explains spectroscopic biosignatures, showing the level of scientific detail common in comics at the time.. From *Eagle* vol 3 #6 (1952, Titan books reprint)



An astronomical cameo

Dan Dare artist Frank Hampson was known to work from photographic reference materials and consult encyclopedias to ensure accuracy of his work. The degree to which this embedded his stories in contemporary science can be seen in his Professor Bronstein, a stellar astrophysicist and mathematician, most likely modelled on Astronomer Royal and science popularizer Harold Spencer Jones.

Image credits: *Eagle* vol 3 #7 (1952), UIG via Getty Images



Science Fiction shares many of the same characteristics as scientific research: it expresses a curiosity and wonder regarding our Universe, and it considers logical extrapolations and possibilities based on our current understanding of the world around us.

- I have used science fiction in my public outreach – presenting talks on the science in science fiction to groups ranging from schools to local astronomy societies and the general public, both in person and online.
- I have also used science fiction in teaching activities, to provide interesting scenarios for solving traditional physics problems, and in discussions of cosmic habitability.
- I have begun to post articles on a personal blog called Cosmic Stories – these explore the links between science and science fiction, as well as pointing out the strengths and inaccuracies of scientific representations

Cosmic Stories: warwick.ac.uk/cosmicstories

I am very interested in hearing comments from other astronomers about the ways they use science fiction in their outreach:

- ✦ Does talking about SF engage or turn-off general audiences?
- ✦ Does the science fiction enhance or distract from the exciting realities of astronomy research? Is there a risk of confusing the public?
- ✦ Are representations of scientists in science fiction (whether classic or modern) useful to discuss, or does encouraging viewers to consider these just propagate harmful stereotypes?



13 Jun

[The White Dwarf](#)

Looking at the astronomy and the catastrophism in an early episode of The Avengers from 1963.

Like Be the first of your friends to like this.

Tags: [Women in Science](#), [The Avengers](#), [Catastrophism](#), [1960s](#)



30 May

[The Avengers and the Imminence of Science in 1960s Britain](#)

The Avengers was a television series that defies classification. Here I look at its SF elements and what they tell us about science in the 1960s.

Like Be the first of your friends to like this.

Tags: [Everyday Life](#), [The Avengers](#), [1960s](#), [Scientists](#)



16 May

[A for Anticipation](#)

"A for Andromeda" was a 1961 drama, remade in 2006. Its themes anticipate issues which are still current in astronomy today.

Like One person likes this. Be the first of your friends.

Tags: [Women in Science](#), [1960s](#), [Scientists](#)



02 May

[An Icon of Futures Past](#)

Looking at Jodrell Bank's representation in science fiction and SF paratexts.

Like Be the first of your friends to like this.

Tags: [Annuals](#), [Dan Dare](#), [1950s](#), [Telescopes](#), [Doctor Who](#), [1960s](#)



18 Apr

[Kings of Space](#)

A look at the Solar System of Captain WE Johns' classic juvenile science fiction series, starting with "Kings of Space" (1954)

Like Be the first of your friends to like this.

Tags: [1950s](#), [Children's SF](#), [Solar System](#)



04 Apr

[Dan Dare at Herstmonceux](#)

Herstmonceux Castle in Sussex became the new home of the Royal Greenwich Observatory research organisation in a gradual transition that spanned the late 1940s and 1950s. As this article discusses, *Dan Dare: Pilot of the Future*, and its host comic *The Eagle* provides a fascinating

Comments, thoughts and critiques would be very welcome!

E.R.Stanway@warwick.ac.uk
@tiylaya on Twitter