



Communicating sciences

Science in fiction

Liz

In the studio today I have two colleagues who are going to join me in a discussion about the role of science fiction and science in fiction in communicating science.

So I am joined by Doctor Jon Turney, who is a freelance science writer, and recently led the MSc Course in creative non-fiction writing in the Science Communication Group at Imperial College.

Also Doctor Bob Lambourne who is senior lecturer in the Physics Department and now Director of the Physics Innovation Centre for Teaching and Learning, here at the OU.

So, Jon and Bob, how would you describe the role of science fiction and science in fiction literature in helping with the communication of science? Is there a different role for science in fiction compared to science fiction?

Bob

Well from my point of view I think there certainly is a difference between these two areas of writing. As far as science fiction is concerned I see it as a branch of popular literature, telling stories, intended mainly just to entertain readers. But in some parts of science fiction, those that take science fairly seriously, there is a use of science that in some cases can be peripheral; in some cases can be central to the story; in some cases even quite profound and showing quite a bit about science itself, so certainly a range of uses of science, but essentially in the service of a story. So the teaching of science for instance is not the main purpose of science fiction, but can happen by accident.

Jon

It's difficult I think to make a hard and fast distinction between science fiction and science in fiction. Partly because fiction, the novel if you like, is such a wonderful, capacious thing; you can put almost anything you like in to a novel. But the distinction I guess that's important for us is that novelists, when they take an interest in - in science, and I think that's happening more often as they notice that this part of the culture has lots of exciting things going on, they will write if they're - if you like - straight novelists, about the imagined lives of scientists working on science as it actually is or as it has been historically.

The characters themselves might be imaginary or they might be imagining parts of the lives of scientists who were once real characters. But they're not making up the science and I guess the 'made up science' part would take you into by definition a science fictional area, although of course some science fiction itself is concerned with authentic and genuine science. But that's not its main *raison d'être*.

Bob

Yes, I think that's an interesting point because in science in fiction novels it really is a case of exploring in a novelistic way, real scientific settings, realistic scientific settings. But in the case of science fiction, the science is purely a vehicle, so as you say it can be a form of imaginary science that's being used, not real science, but also there's probably less emphasis on the scientist. The scientist may be at the centre of the science fiction novel, but it's really some kind of scientific principle often that is in play liberating the story to make some kind of

exploration so that one is really moving into an imagined world rather than exploring the life of a scientist in a real world, even if it's a fictional scientist.

Jon

Yeah, and those sorts of novelists whose explorations of scientific lives I suppose are one of the kinds of resources which fiction can offer to provide occasions for communicating science or for provoking interest in scientific topics. I think one can look at these sorts of cultural products as - as resources. They are not designed to teach.

Typically if they are designed to teach they don't work very well as fictions. But that particular kind of novel I think can offer interesting opportunities. There are of course lots of other kinds of novels. Sometimes there are novels which involve science and take up scientific ideas as things which are explored metaphorically or trying to assimilate them culturally in other ways.

So there are novels about quantum indeterminacy as a prism through which to read the history of the Twentieth Century. You might want in a rather strict way to try and use that in some way to communicate science but I think that's probably a slightly different enterprise from the sort of discussion you'll have about a novel which is actually about a scientist doing whatever he does, or she does.

Liz

Well what do you think of some of the attempts that have been made in the past to use science fiction books in a sort of more pedagogic way?

Bob

Well I think there's great scope for that and there are many books around that reflect that, books that analyse the science in science fiction and the success of science fiction in teaching.

Of course because the science in science fiction is not bound to be correct science, that's not a requirement imposed on any author, it's always a slightly risky field in that way.

There is a sort of sub-literature analysing errors in – in science fiction books. And of course many literary critics, critics of science fiction, are - are keen to immediately pounce on that and say: "There is no such thing as an error in science, in a science fiction book, because it is a book of fiction. So how could there possibly be an error in the science?" So there is an interesting dialogue that can be had about the relevance of that kind of classification.

But I think I've always felt that there is a deeper significance to science fiction than that and it's because often science fiction books, whether they're sticking to the facts of science as we currently know them or not, often they're concerned with scientific processes, the kind of thinking that goes on in science. And of course that's partly because a good many science fiction books are written by people with a scientific training, a scientific background; in some cases even active scientists.

Liz

So, do you think that there's a role for science in fiction books to communicate science or communicate processes of science as well as science fiction?

Jon

Yes, I mean again I think they add to the resource. In some ways the things that they do are not terribly distinct from science fiction.

It's to a degree arbitrary which shelf in the bookstore you – a novel gets put on. Of course it matters intensely to authors and publishers.

There are novels which convey the detail of some scientific ideas. Again accuracy is a rather tedious criterion to apply to a literary work in that sense I think.

But the depiction of scientific process in a novel may well be more engaging than it is perhaps in a scientific biography or a scientific autobiography. Novels are about heightened drama and characters doing interesting things. It's a way perhaps a way around what one might think of as one of science communications dirty little secrets which is that the doing of most science most of the time is actually quite dull and a realistic depiction of that would not engage the interest for very long.

But if you heightened the drama in the ways that a novelist can or a science fiction novelist can you can convey the nature of scientific work in - in richer ways than perhaps some readers would have patience to follow through in a non-fiction work.

Liz

Where actually do you find science in fiction books in bookshops?

Jon

Well there isn't a separate category for that. I mean it can be as various as the novel is, so there are thrillers with a scientific content like Michael Crichton's famous, rather formulaic depictions of various kinds of contemporary biomedical science, and climate science, and nanotechnology. There are detective stories, there are literary novels, there are biographical, historical novels about genuine historical figures like Alfred Wegener.

There are explorations of the sorts of things that particular scientists might have been thinking at particular times in their lives. I think of a recent novel about the time which Schrödinger spent in Dublin during the Second World War when we don't actually know what he thought but a novelist's imagination can give us an idea of the sorts of things he might have thought. Variety is the main feature I think of this landscape.

Liz

So, do you think that science in fiction has got the potential to creep under some people's barriers who have a - who claim to have a dislike of science fiction and would never read it?

Jon

If there are such people then yes, I suppose it might. I mean the job of any of these writers in the first place is to tell a damn good story and if you tell a good story then you can use that to explore whatever you choose to weave in to your story.

And that can involve scientific matter. It might be a story about some other aspect of the culture, which is not often remarked upon. I mean there are - it's interesting what - what the blind spots of literary fiction tend to be at particular times and places, and I think if you go back into the Nineteenth Century and early Twentieth Century you find rather few scientist characters in novels.

If you start the conversation, the same ones tend to come up every time, that we remember. Now there are rather more of these and it's an area of the culture as I say which attracts the attention of more literary artists, perhaps because of the popular science non-fiction boom and there are now more entry points for other intellectuals into science without engaging with primary science, and you often find, sometimes you can see fairly clearly where the inspiration is coming from. You know a novelist, a science fiction novelist or a regular novelist will appear to be terribly knowledgeable about string theory. That's not because they can write the equations it's because they've read Brian Green or Roger Penrose or somebody like this.

So, it's something which novelists increasingly seem to be curious about and I find that interesting. And as I say again the area of scientific work seems to interest them. I think work is something which novelists generally don't write about well very often. It's hard to think of many good novels set in a workplace and if they are it tends to be in the office.

But there is something about the work of a laboratory which, as Mary Shelly taught us, is a kind of mysterious removed place where bizarre things can happen which I think interests novelists and they would like to imagine what that life is like, whether it's a life of ideas or a life of very skilled manipulation at the extremes of some system where you're to extract a signal from noise, get data out of a recalcitrant experimental set up.

I feel the drama coming on as I describe it. Maybe I should try and write one of these novels.

Bob

Yes, I think you make an interesting point about the growing field of literature that explores as it were life in the laboratory, the life of a scientist, and so on. But also, even going back to the Nineteenth Century, there has always been a strand of literature that's picked up scientific ideas. I'm thinking particularly of stories with a kind of concealed, evolutionary theme, following on from the work of Darwin. So although it wasn't really about the life of a scientist, somehow scientific thinking had become ingrained in the thinking of novelists or at least been exposed through their writings.

Jon

I think that's absolutely true. I mean the idea of evolution, you know, the whole culture bears the stamp of that; the early Wellsian science fiction novels are mostly evolutionary epics of one kind or another. Things either turn out very, very well or more often in Wells, very, very badly.

And a man with an extraordinarily enlarged worldview as a result partly of his own Darwinian education. You also see it, and this is an observation that A S Byatt makes very well, in the kinds of observations which novelists make. They suddenly start noticing things like the insect life of a – on the forest floor, or the, you know, minute flora and fauna is the sort of thing which Darwin drew one's attention to, and which novelists previous to that would not really have thought to detain their readers with. But suddenly this becomes a noticeable part of the world for many of the literary writers.

Bob

Going back to Liz's earlier point if I may about getting under people's radar, I do think that there's an important possibility there. As a - as a known science fiction fan in my department I've got colleagues who delight in telling me that they never read science fiction.

And I quite sympathise with the view of some of them. A lot of science fiction is rather badly written and you can have a dreadful experience quite early on if you're not careful about what you read.

But I do think that science in literature offers different kinds of audiences or can draw in different kinds of audiences, people who wouldn't dream of reading something that had science fiction on it.

Also I think there's an interesting band of novels on the edges, somewhere on the boundary between the two. One case that comes to mind which in a bookshop you probably would find on the science fiction shelves but could be put elsewhere, I think is John Cramer's novel "Twister" for instance.

Now "Twister" is essentially a science fiction story but the characters in it are students and members of a successful physics department. It's no accident I think that John Cramer himself is a well known physicist at the University of Washington, and in "Twister" a lot of it is really exploring the life of the graduate students and the problems they have relating to their

supervisors and that kind of thing. Now, all this is on top of a fairly superficial science fiction adventure story. But when you were talking about thrillers the Cramer novel came very much to mind. It's not science fiction in the traditional mode at all and it was published at a time when it would be regarded as traditional science fiction I think but it could easily now be re-classified.

Liz

Yes. I think that does suggest that we need to look at the classification somewhat. And that the latest sort of publishing successes in science in fiction and the growth of book clubs, places such as the Royal Institution and the Wellcome Institute that are discussing these sorts of books, suggest that it might have potential in the future for communication methods that other communication methods have failed maybe for those people who have been not been turned on to science fiction in the past.

Thank you very much Bob and Jon.