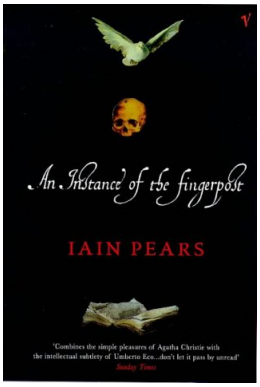
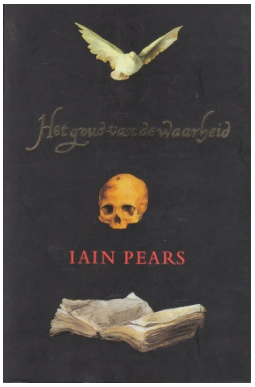
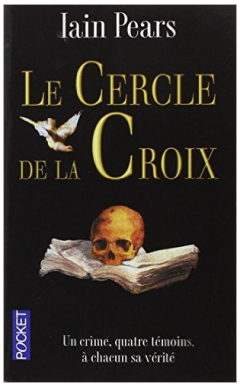
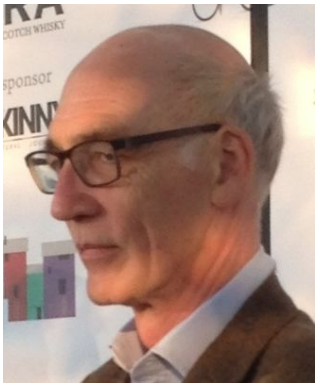
Iain Pears *The instance of a fingerpost*, Jonathan Cape, 692 pages, 1997 ISBN: 0-224-04466-4
Iain Pears *Arcadia*, Knopf, 528 pages, 2016 ISBN: 978-1101946824
Blake Crouch *Dark matter*, Crown, 342 pages, 2016 ISBN: 978-1101904220








Iain Pears 2015

The first book is rather old, but the reason why I want to review it here is that one of the main characters in this historical thriller is the mathematician John Wallis (1616-1703).

John Wallis was the most important mathematician in England of his time and prepared the path for Newton. In fact he initially engaged in medicine and studied the then recently discovered idea of blood circulation in animal and human bodies and the first experimental blood transfusions. As a mathematician he is best known for his infinite product defining $\pi/2$ as $\prod_{n=1}^{\infty}(\frac{2n}{2n-1}\frac{2n}{2n+1})$. According to Wikipedia, he also introduced the symbol ∞ and was the first to use the term continued fraction. He lived in a turbulent period of the English Civil War in which Royalists fought Parliamentarians. King Charles I was sentenced to death in 1648 and a military dictator Cromwell became the leader of the Protectorate. After Cromwell's death in 1658, the monarchy was reinstalled and Charles II returned from exile in 1660.

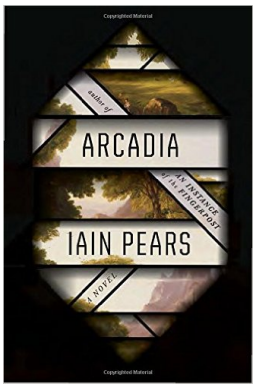
Wallis was very helpful to the Parlementarians as a cryptographer by deciphering the secret messages of the Royalists. He spent some time in Queen's College Cambridge but returned to London after his marriage. There he had weekly meetings with several scientists among which Robert Boyle, John Wilkins, and Christopher Wren. This group became later the Royal Society. For his loyalty to Cromwell he got the Savilian Chair in Oxford, which he held for 50 years until his death. Later he also became keeper of the University archives.

Pears structured the book in the form of 4 (fictitious) contradictory memoirs written a long time after the facts that must have happened just before Charles II was reinstalled. The first narrator Marco da Cola, is an invented Venetian catholic dandy traveling for his father's business. For shortage of money, he wants to work with the physicist Robert Boyle (1727-1691) who assigns the physician Richard Lower (1631-1691), as his supervisor. Cola becomes a self declared physician and administers a blood transfusion on the mother of Sarah Blundy. The credits for the success of this experiment were taken by Lower, which is indeed what he became famous for. During Cola's stay in Oxford the astronomer Robert Grove is murdered, and this triggers the whodunit aspect of the novel. The second memoir is by Jack Prestcott who is the son of a Royalist traitor trying to clear his father's reputation. At some point he takes advantage of Sarah Blundy and is convinced that she, as a witch, has put a spell on him. Sarah was working for Grove and she is eventually accused of the murder on false grounds, sentenced and hanged. John Wallis writes his own version of the facts after reading the memoir by Cola. In fact, fully involved in the turbulent politics, he is obsessed by conspiracies and spying, and is convinced that Cola came to England to murder the king, or the Lord Chancellor, and he is convinced that he has already murdered two other persons. One of them is his young servant for whom he has more than usual affectionate feelings. The last narrator is Anthony Wood (1632-1695), an historian in Oxford. He falls in love with Sarah, and he is after the archives that are guarded by Wallis. He is the one who brings in his account the truth of what actually happened and who the true murderer is with several unexpected story twists at the end.

Besides the fact that John Wallis and Anthony Wood actually existed, just as many other characters that are mentioned in this novel, the whole intrigue is fantasy and although the political and scientific climate of that period are rather accurate, the psychology of the persons is for the sake of the story and is probably not corresponding to reality. There are a few pages on the elementary crypto systems of those

days, but there are for the rest no mathematics. When Prestcott visits Samuel Morland (1625-1695), a diplomat, spy, and mathematician, he is introduced to his collection of calculating machines, "the finest in the world, not alas unique as some little Frenchman has one, but ... his doesn't work as very well. Not like mine." Morland says and hereby refers to the Pascaline of Blaise Pascal.

The book is also available in Dutch (*Het goud van de waarheid*, Anthos, 1999) or in French (*Le cercle de la croix*, Pocket, 1999).



Iain Pears has written several bestsellers and is known for experimenting with the the structure of his novels. In his latest novel *Arcadia* he tilts the experiment over the top in my opinion. The book appears in printed form but is also available as an app for iPhone and iPad. There are many different stories that are intertwining and the app allows to choose whichever line you want to follow. Not only is the story complex because of the different story lines and the many characters, but Pears also succeeds to cook up a mixture of a fairy tale, a science fiction story, a spy novel, and many other genres. You will recognize elements from Alice in Wonderland, the Wizard of Oz, Lord of the Rings, Narnia, James Bond, etc., and it is all caused by a maverick mathematician from the future: Angela Meerson. She is working on parallel universes and when she is afraid that the project will be cancelled, she uses it to travel to a parallel universe which turns out to be also a time travel. Her disappearance consumes so much energy that there is a worldwide electricity breakdown. Since she is the only one who is able to operate the machine, it takes several years for other scientists to make the machine operational again. She arrives in the second World War period of the 20th century and has a love affair with a British spy Henry Lytten. She knows the future and is also super intelligent, which helps her to survive easily. She is able to reproduce her machine and hides it in the basement of Lytten in the form of a pergola. Many years later Lytten is retired and is joining a club of storytellers who meet in the weekend to go through their stories in progress. They create a fantasy world called Anterworld in the style of Narnia or Middle-Earth. By way of experiment, this is used by Angela to create a static parallel universe to which her machine gives access. It should however be kept isolated, because interference from outside would start up dynamics and evolution, and this could possible alter the present, which would be disastrous. Rosie, is a young girl who is looking after Lytten's cat when he is absent, by accident enters the pergola and arrives in this Anterworld where she lives many adventures. People in that world resemble people from the 21st century and also people from the future interfere when they are looking for Angela to bring her back to the future and punished her.

Thus the origin of all this is a mathematical genus in the person of Angela Meerson, but I do not think that this comes anywhere near the mathematics that govern the quantum physics and that suggests the possibility of parallel universes, let alone this to be equivalent to time travel.

Parallel universes are also the main subject of the book *Dark Matter* by Blake Crough. Here the idea stays closer to a naive version of Hugh Everett's multiverse interpretation of quantum mechanics. Schrödinger's cat is in an undecidable quantum state of being alive or death, but the moment we observe it, the state will collapse to one of those, but the hypothesis is that the other possibility also exist in a parallel world. Each time a decision is made and one chooses for one option, the other possibility will happen in a parallel universe, which creates an infinity of possible parallel universes.




Blake Crouch

In this novel a bright student makes his girl friend pregnant and there are two possibilities: either he chooses to become a family man, or he chooses for an abortion to continue his scientific career. The science person is so brilliant that he succeeds in transferring himself to a parallel universe. He however misses a family life and decided to change places with his family-life-alternative. From that point on we follow the family man who is desperately trying to return to his wife. His attempts lead to many adventures in all kinds of weird universes. In the end he succeeds to regain his wife and kid, but in all his attempts he has made many decisions and so he is confronted with many copies of himself who are all claiming to be the one and only husband.

A. Bultheel