

Science Fiction Book Club
Interview with Frank White and Robert Godwin July 2018

*Frank White is best known for his writing of the 1987 book *The Overview Effect — Space Exploration and Human Evolution*, in which he coined the term “the Overview Effect.” The book has now gone through three editions and Frank is preparing the fourth. He has appeared on *The Space Show* hosted by Dr. David Livingston, and has given numerous speeches at space events. He also co-authored “*Think About Space: Where Have We Been and Where Are We Going?*” and “*March of the Millennia*,” with Isaac Asimov.*

*Robert Godwin is also a super-fan of Asimov. He owns over 400 of his books. He owns every single SF book he wrote, including first editions of *Foundation* and *Nightfall* which Asimov signed for him many years ago. He also has almost all of his early Pulp appearances back to the 1940s. Sadly, when Asimov died, Godwin's letter of condolence was the very first one published in Asimov's SF Magazine.*

Seth A. Milman: Because of ambiguity in human language, there is almost always a disconnect between the intended meaning of a rule and the interpretation of a rule. This is evident in Asimov's three rules of robotics. The rules are written using high-level, ambiguous language. They are moralistic and idealistic rather than formulaic. But they are interpreted very strictly by the robots. Did Asimov intentionally design the laws of robotics this way at the outset, to use the ambiguity between the intended meaning of the rule and the rigid interpretation of the rule as a thematic/plot device? Or did his themes surrounding these rules develop after he came up with the rules?

Frank White: I am not sure of the answer, but I think it is a bit of both. It seems to me that the key is that the rules can contradict one another in real situations, which leads to interesting plot twists. I doubt that he saw all the potential issues when he laid out the rules, though he could see ahead to some of them. As he wrote, the results evolved, which is usually true with any form of fiction.

Robert Godwin: It is my understanding that when he (and John Campbell) first wrote those rules it was a literary device designed to put limitations on the story. Asimov later wrote about how surprised he was that he was able to extract so many stories from the latent ambiguities in the laws. Much later in his career he was able to stitch together the two "worlds" of Calvin's robots and Seldon's Foundation which presented even more ambiguities and opportunities. Boolean logic was well established long before the 1940s, whether Asimov knew or simply anticipated how computers might be programmed is unknown to me.

Seth A. Milman: Rigid interpretation of the rules in Asimov's stories often leads to dire consequences. Were the rules intended to show that common sense must be an ingredient for laws to function properly?

Frank White: I believe so. Actually, we humans are not so different than the robots. We have laws (rules) that we try to obey, but then we have real situations to consider. For example, “Thou Shalt Not Kill” seems straightforward, but if an intruder breaks into your home at night, what do you do? Well, then we have more laws about that and perhaps we get into self-defense. But what if the intruder did not have a gun? And so on.

Robert Godwin: Very tough question to answer because I don't recall him ever addressing this specifically. i.e. if it was deliberate. What I can say is that Asimov was one of the truly important rationalists of the 20th century. It seems to me that to be that rational you need to have an appreciation for the logic of common sense. He was also a humanist which requires empathy. Strict adherence to dogma, regardless of consequences, can preclude empathy. Without sounding too much like a fan boy, Asimov was a genius by almost any measure, I find it highly unlikely that he didn't know what was implicit in his fiction, especially later in his career.

John Grayshaw: Will robots in the future actually follow Asimov's laws? Did Asimov believe they would? Or was it just good for storytelling?

Frank White: Actually, people involved with artificial intelligence research (AI) bring up Asimov's Laws all the time. There seems to be a feeling that he has done as good a job as any in creating robots we do not have to fear. But then, the same thing happens in reality as in the stories. It gets complicated and everyone says, "We need something better."

Robert Godwin: It seems highly unlikely that his laws will ultimately be embedded in whatever comes out of future AI laboratories. Asimov spoke frequently about why the laws made sense to him. His favourite analogy was "If the sword makers were smart enough to put a hilt on their swords so that when you stabbed someone your fingers didn't run down the blade, then the robot makers will surely be just as smart." Whether something can be deployed in AI that is as intrinsically simple as the three laws is an open question. We don't really know yet because we don't yet know how a true AI will function. Once an AI can really pass some sort of advanced Turing test, what will the architecture of its brain look like? Will it have an off-switch like Data in Star Trek? Will the sword have a hilt? No one knows yet. Sadly I think it highly unlikely, a truly mobile AI would be a formidable weapon.

John Grayshaw: Why did Asimov move away from Foundation series and Robot Series after late 50s and why did he return to it in the 80s.

Frank White: I don't know, but as a writer, I can speculate. Topics for writing fiction bubble up from the subconscious and they can have a lot of momentum for a long time and then they dry up, only to reemerge later. That may have happened. Also, writers pick up on the environment of the time and the 80s might have been more conducive to those topics in the 80s than in the 60s and 70s.

Robert Godwin: To the best of my knowledge he was badgered non-stop by his publisher in the interim to write more Foundation stories. He commented that he felt somewhat adrift in the science fiction world after the onslaught of the so-called "New Wave" of the 1960s and 70s. However, he proved he could still be a contender and muzzle his critics when he released "The God's Themselves". It won some big awards and seems to have reinvigorated his interest in his ability to write good SF. I seem to recall he admitted that Foundation's Edge (the first of the "new" novels) came about because they just simply offered him a lot of money.

Alexandra Brown: What was the inspiration for the development of robots? How did he come up with the 3, and ultimately 4, robotic laws? Did he plan for the underlying plot with the robots in the full series of Foundation or was it something that developed as the story developed. And along that line,

was Foundation planned all the way through to its conclusion or was that developed as each book was published?

Frank White: I have an answer to the first question, but not to the others. Regarding the first question, I interviewed Asimov for my book, *The SETI Factor*, in 1989. The book is out of print, but most of the interview is in the book and you might find it interesting. I suggested that humans had evolved from automatically fearing aliens to being more comfortable with them. He said “I hope you’re right. Our experience rests in the European exploration of the world, in which we enslaved the natives we found and then killed them off. We expect the aliens to be as bad as the Europeans were, but even now we have learned that it isn’t right to kill off natives or even an endangered species.”

So he saw our fear of aliens as being a projection of our own worst behavior and as we behaved better, our projections became more benign. Anyway, he did not want to write science fiction that showed aliens as evil. That is what led to the robots. Here is a footnote from the book: “In an interview with the author, Asimov explained that John Campbell, perhaps the most important science fiction editor at the time, mandated that humans should always win out over extraterrestrials in any conflicts or competitions they might have. Asimov did not want to cooperate with this dictum, so he created two series that had no extraterrestrials in them.” These were, of course, the *Foundation* series and the robot series.

Regarding the whole question of planning, I would share my experience, once again, as a writer. I wrote a novel many years ago about contact with extraterrestrials called *Decision: Earth*. As I continued writing it, I became increasingly more interested in what I called at the time “Computer agents.” These were AIs like the *Siris* and *Alexas* of today. I didn’t plan it, but it just happened. I don’t know if Isaac planned it out or if it evolved, but I suspect the latter.

Robert Godwin: It was editor John Campbell’s dislike for aliens and his opinions on religion which sparked the idea in Asimov to submit a robot story. He said that he thought it would deflect Campbell’s objections and prejudices. The story was about a robot which felt it was superior to humans and it made the argument through reason. So the story was called “Reason”. Campbell bought the story enthusiastically and so Asimov came back with another idea for a telepathic robot. It was two days before Christmas in 1940 and Asimov went to see Campbell again who once again encouraged him. It was at that meeting that Asimov maintains that Campbell articulated the three laws. Asimov says that Campbell later denied this and that the laws were implicit in the ideas that Asimov had put out during their talks. Regardless, Asimov got all the credit even if he tried not to take it. He never planned it as a series, in fact when he first pitched *Foundation* to Campbell it was as a short story. Campbell said the concept was too big for a short story. He didn’t even know if Campbell would like the idea. Once he wrote the first short story, he ended it on a cliffhanger in the hope that he could convince Campbell to buy the sequel. The idea worked but was clearly motivated by a paycheck.

Heather Prince: Did he start out with the intention of connecting so many of his novels into one universe?

Frank White: Again, I don’t know, but he probably started out thinking of them separately and then saw the value of connecting them.

Robert Godwin: Not to my knowledge. As an avid fan of his work since I was a kid I can remember being astonished and delighted when he tied his two most popular worlds together. He actually said that

Campbell encouraged him to write an outline for the Foundation idea which could spread across several stories, a future history. Heinlein had been doing that very thing. Asimov tried to duplicate that process and found that he couldn't and gave up after a couple of tries. He found it easier to just sit down and write, rather than make grand sweeping plans in advance.

Heather Prince: Would he have identified more with the spacers or those that remained behind on Earth?

Frank White: A great question. If I am right that he was agoraphobic, I think he would have identified with those who stayed on Earth. Also, the writing implies a certain degree of skepticism regarding how dependent the Spacers became on their robots. They were somewhat like slave owners, I think.

Robert Godwin: No doubt in my mind that he had more in common with Elijah Bailey than any of his other characters. Asimov was devoted to the city of New York. He almost never travelled anywhere that required anything other than a train ride. He made one notable exception when he was convinced to go to England in 1974 where he was treated like a rock star. He was terrified of flying and very uncomfortable on ships. No way he would ever have boarded a Virgin Galactic ride!

Carl Rosenberg: Is anyone planning on reissuing the books Asimov on Science Fiction and/or Asimov's Galaxy: Reflections on Science Fiction, or at least some of the essays in these two books? Asimov is known for his essays as well as his science fiction, but I think some of his most interesting essays are on the subject of science fiction itself.

Frank White: I don't know. Walker Publishing, which published the two books I co-authored with him, had plans for reissuing a lot of his work when he died. I was supposed to help them with the project and was saddened at his passing for so many reasons, but partially because it meant that initiative would not happen.

Robert Godwin: I have no knowledge of any plans to re-release any of his non-fiction. As a publisher and a fan it seems to me to be a terrible waste. He has one of the most remarkable catalogs of any writer in history and based on what I see it looks like less than 1 or 2% of his work is now available. I did a Reddit recently and someone asked me to recommend an SF writer that could teach them some science. There was only one answer in my mind but I was contradicted when someone else pointed out that he was "out of date". Until you've really studied his non-fiction you can't make that kind of sweeping generalization. His non-fiction is wildly expansive and entertaining. If you want to get wonderful insights into anything from Mary Shelley to Shakespeare to the nature of carbon, try and find any of Asimov's non fiction.

Jim Dean: I'm a big fan and have read all of his SF - most, several times. Would you consider him as a better writer of engaging human characters, or engaging robotic characters? Why were his stories relatively "dry" of emotion and pathos?

Frank White: I think he was better at creating robot characters than at creating human characters. As I read more and more of his Foundation work, it seemed to me that the robots were evolving and becoming better than humans. Perhaps he intended this to be the case. In any event, he was first and foremost a scientist and he may have felt more comfortable with rationality rather than with emotion.

Robert Godwin: He was criticized for not creating human characters with emotional depth. He wasn't the only one to suffer that criticism. Clarke, Heinlein, Smith etc etc, all suffered the same fate at the hands of the literary establishment. I suppose if you hold up Susan Calvin or Elijah Bailey against Molly Bloom or Doctor Zhivago you are likely to find something wanting. But to me that misses the point. Science fiction in the 1940s and 50s, when Asimov arrived on the scene, was ghettoized to the point of absurdity. Despite the many post facto comments made about Frankenstein or The Time Machine or A Journey to the Center of the Earth, science fiction was still a new kind of literature. The rules of engagement were still being calculated. Most of the purveyors, like Asimov, were young men with a very small audience, and that audience was in the pulp market. Despite the recognition showered on Wells and Verne the notion of fiction as a form of didactic expression about the future was still finding its feet. It was almost the exact opposite to allegory. Instead of fictional allusions to past events it was about fictional allusions to things that haven't happened, but might. Asimov had grown up reading some of those same pulp magazines and obviously recognized that it was not only a new kind of literature but the ONLY kind of literature which tried to look around the corner to see what might be ahead. The person who gets all the blame (and some of the credit) for creating that environment was Hugo Gernsback, the publisher of many of those early pulps. Gernsback gets a terrible rap for being a bad writer, but again that misses the point. He wasn't going to bed at night agonizing over the internal conflict in his protagonist's character, he was trying to figure out a way to get people excited about buying radios. Likewise, Asimov was motivated by the intellectual challenge of trying to see around corners, while at the same time having fun while paying the bills. Having said all that, the characters like Daneel Olivaw evolved and became more complex in the later novels. Presumably this was partly because Asimov was older, smarter and a better writer by then.

Martin Dudley: How did Isaac Asimov arrive at using the concept of psychohistory? Did he build on pre-existing foundations, or did he contribute to the creation of the subject? Was he surprised by the way it caught the interest of academia?

Frank White: Speaking from the experience of co-authoring March of the Millennia: A Key to Looking at History with him, I would say he was always interested in what we would now call "Big History." In reading his draft, I was struck by the fact that if you looked at history in thousand-year chunks, certain "signals" stood out above the "noise." For example, I started to see immigration as more important than a lot of other issues in determining the shape of history. It is just a short step from there to "future history" or "psychohistory." I don't know if he was surprised by the interest of academia, but I feel certain he was pleased.

Robert Godwin: Asimov hoped that something like his fictional predictive science of psychohistory might one day be possible. He didn't really live long enough to see it working as an influence today on many different groups of analysts keen to try and make predictions about group human behavior. There were some glimmerings of interest during his lifetime but nothing like today. I think this is partly due to the power of modern computers which make it possible to do massive number crunching affordably. I wouldn't be surprised if Asimov had read Marx and Freud and others. Whether he deployed that in his stories when he was 19 and 20 years old seems unlikely.

Tony DeSimone: I know later in his life he was mainly considered a humanist, but do you have any insight on how his Jewish heritage shaped him as a person and a writer? Also my girlfriend wants to know if he was bar mitzvahed.

Frank White: Sorry, I don't know the answer to that question.

Robert Godwin: He said that after he got his first cover (for Nightfall) he still didn't realize he had "made it". He said that he put it out of his mind because he was better off thinking he needed to work hard and maintained that attitude throughout his life. That kind of work ethic probably came from something deeply instilled in him by his parents who had come to America with almost nothing. As a child he asked his father to help him to learn to read Hebrew. He picked it up fairly quickly and so his father enrolled him in Hebrew school which he attended five days a week., but when the family moved neighbourhoods he dropped that and ended any formal religious training. He was maybe eight years old. When it came time to go through his bar mitzvah it never happened. He never explained why, but he did say that it never bothered him and he remained irreligious for the rest of his life.

Adrienne Clark: For someone who dreamed up so much technology, Asimov didn't think much of it. Was there an underlying reason why he refused to have nothing to do with computers, airplanes, etc?

Frank White: I don't know this for a fact, but I think he was agoraphobic, like the people living underground in Caves of Steel. When I interviewed him for my book on SETI, he told me he had been invited to Boston for a dinner where he would receive an award, but he did not want to go. I couldn't understand why anyone would not want such an honor, but I have often wondered if it was the travel that bothered him.

Robert Godwin: He travelled to America as a child and that was his one early experience in long distance travel. He often commented that New York City offered him everything his heart desired. There's something to be said for that if you have no interest in unspoiled nature. He lived in the most technologically dependent city on earth. He did eventually get a computer, when someone gave him one. However, you must remember that when he died in 1992 there was still no World Wide Web. Computers were still pretty clunky and limited to what you could accomplish with them. I remember getting my Commodore 64 and it was less useful than my alarm clock. By the time computers became truly affordable and useful to a professional writer in the 1980s, Asimov had already been using a typewriter for fifty years.

Ed Newsom: A number of Asimov's stories can be described as puzzles the lead character or reader must solve--not just the Black Widower stories and the Elijah Baley/R. Daneel Olivaw novels, but most of his robot stories are constructed this way as well. Did his love of puzzles extend beyond reading and writing mysteries? Did he write crosswords, for example?

Frank White: He was a polymath and interested in just about everything. I don't know about the crossword puzzles, but I wouldn't be surprised.

Robert Godwin: I don't know the answer to this; however he simply couldn't have become the polymath that he was without an extraordinarily inquisitive nature. It still astonishes me how much he knew about so many different topics. I think like many people with a love of science and story-telling the Conan Doyle books were important to him. In a way Holmes was an unrecognized form of science fiction. Asimov obviously loved Sherlock Holmes, (he even wrote a book of Sherlockian limericks!) and his chosen career in science also required an inquisitive nature. He later edited an anthology of Holmes science fiction stories including at least one written by Conan Doyle himself.

Heather Prince: Did he still feel by the end of his career that scientific and technological advances in the future would make crimes so easy to solve that creating a mystery would be difficult to do?

Frank White: I am not sure, but probably.

Robert Godwin: Interesting question. I don't know the answer to that. However, the reason he wrote *The Caves of Steel* was because someone once challenged him by saying that it would be impossible to write a murder mystery in a future science fiction setting. He very emphatically proved them wrong. I think given what we know today about DNA tests and so forth, he would have used his extensive knowledge of science to find a loophole to make up a good story. He would have made a formidable expert witness in any trial.

Eva Sable: I loved his science fiction, but also loved his *Tales of the Black Widowers*. Did he ever express why he let those stand as mysteries set in current time rather than grafting them into his science fiction?

Frank White: Sorry, I don't know.

Robert Godwin: He had written quite a few science fiction mysteries in the 1950s but had always loved old school mysteries like those by Conan Doyle and Agatha Christie. He had avoided the genre because he felt that he was no longer in touch with modern mystery writing so he was pleasantly surprised when the *Ellery Queen* magazine asked him to write a story for them. As usual this opened the floodgates in him to write several stories. He frequently said that he admired Agatha Christie and her detective Hercule Poirot, but he also acknowledged that some of his stories were more akin to Chesterton's *Father Brown*. Others have pointed out that his character Henry is much like Wodehouse's *Jeeves*. Asimov acknowledged all of these influences which again shows how much reading he did in that genre.

John Grayshaw: Did his friends from the *Trap Door Spiders* ever comment on becoming characters in the *Black Widowers* stories?

Frank White: I don't know.

Robert Godwin: Although he initially said that the *Black Widowers* were not directly related to specific members of the *Trapdoor Spider's* club it became apparent in later years that some of the characters were loosely based on his friends. I've never seen any comments from those individuals but later Asimov gave copies of the first book to them and said "One and all carefully masked their real feelings under the pretense of pleasure..." He very clearly stated that Henry was not based on a real person.

Anastasia Hilvers: I have always been curious if Asimov would have approved of the "*I, Robot*" movie, and if not, did he have something akin to Ellison's '*Cordwainer Bird*' flag to indicate that he was not happy with visual media treatment of his work?

Frank White: I also don't know about this for a fact, but when I saw the movie, I thought he would have disliked it intensely. It was not a good representation of his ideas, in my opinion. It seemed to me that they took a profound idea and poured it into a Hollywood template.

Robert Godwin: It's always hard to know what someone would have said. It seems to me that he would have probably been dismayed by the amount of gunfire and violence in the movie. I know I was.

Jan van den Berg: Was Asimov really as well-liked as appears from his autobiographies? How would his behaviour towards women be regarded in the #metoo-discussion?

Frank White: I don't really know the answer to this question, but I can tell you something about his way of interacting with people, based on my experience with him. I was originally asked to work on Think About Space, which was part of the series for young people, by a recent Harvard graduate whose former roommate was the son of the owner of Walker publishing. Mr. Walker was a personal friend of Isaac and he wrote a number of books for them. It was agreed, as I recall, that we would have co-authorship but I was clearly the junior writer. I wrote the first draft and send it off to Isaac, then waited for his response. He wrote a letter to Walker and me, saying he could not do much to improve it, though he did have some suggestions. He said he thought I should get sole authorship or at least be the senior writer. Of course, the publishers did not want either of those things because they knew that it was the Asimov name that would draw attention to the book. Still I was very touched that Isaac spoke so highly of my writing and that he was willing to withdraw altogether from the project in deference to me.

With the second book, March of the Millennia, the situation was reversed. Isaac had written a first draft, but it needed a lot of editing. I was asked to be the editor and worked hard on it. When I had finished with that task, Isaac insisted that I be given co-author status!

These two examples of his integrity and generosity touched me deeply. As is the case with many of you, Isaac was a hero to me, and I am pretty certain he was the author of the first science fiction book I ever read. Like many astronauts and people like Elon Musk and Jeff Bezos, he not only had an enormous impact on the science-fiction world but also on the real world of space exploration. I would have admired him even if you weren't a nice person, but he was very nice to me and I will always remember it.

Robert Godwin: By all accounts Asimov was a real character to be around, especially later in life. His autobiographies are amusing but also reveal a young man who was naïve and socially awkward. He also avoided confrontation, as famously recounted in the so-called Immortal Storm in the world of early fandom where he managed to never take sides. It's very difficult to quantify how much someone is liked by their peers if you aren't there to witness it firsthand. Certainly he was keenly liked by Arthur Clarke, Harlan Ellison and others. As for the second part of your question, Asimov was a liberal thinking secular humanist. He made it clear in his writings and interviews that he was a reliable voice protecting people's freedoms and rights. It seems to me that one of the dangers today is to take modern standards of rectitude and try to apply them to a different time. It may well be that such standards might fit easily into place, but oftentimes they don't. This isn't an excuse or a rationalization for bad behavior, it's just an observation. I have heard anecdotal stories about him indulging in pranks and other forms of interactions that might well be considered inappropriate today, but I feel sure he would have continued to be one of the loudest and most articulate voices speaking out against discrimination or other forms of abusive behavior if he was still alive.

Tom Britz: I read long ago that Asimov, Heinlein and L. Sprague de Camp, were all based in Navy communications and that it was they and a few others that shaped the direction of SF. James Tiptree Jr. and Cordwainer Smith were CIA and Military intel, also. The military supposedly wanted SF to be in

tune with what they wanted. I also noted that those writers, rarely if ever used aliens in their stories. What can you say about this thought. As I said I read this a long time ago.

Frank White: I don't know about his military service. However, it would not be surprising if the military wanted to shape SF.

Robert Godwin: I think "shaping the direction" sort of implies that it was an organized plan. I have seen no evidence to support that conclusion. However, if there actually was an orchestra leader it would have to be John W. Campbell, the editor of Astounding who decided what and who got published. You are correct that a lot of them ended up in the same part of the Navy during the war but from what I remember he said they didn't see a lot of each other. Also you need to remember that pretty much every able-bodied young man was serving somewhere at that time so it was not unusual that some of them ended up in similar roles and places. Even on the other side of the Atlantic Arthur Clarke, Douglas Mayer and many of the members of the science fiction association also ended up going from basic training into some special role; in Clarke's case it was early radar. Heinlein had famously predicted a nuclear stalemate before the war was barely underway, it hardly seems surprising that this would attract someone's attention. The nature of being a "futurist" was going to attract the attention of the military. This had been going on since World War I when Gernsback had suggested digging tunnels under the German trenches and filling them with explosives. Not long after, the military powers did just that and Gernsback promptly dialed back the kind of things he was suggesting in his "Electrical Experimenter" magazine. In another example the Nazi propaganda minister Goebbels ordered a German film studio to make a big budget colour production of the adventures of Baron Munchhausen as a way to counter what he perceived as the pernicious influence of Hollywood. It seems to have escaped him that although Munchhausen was a beloved German character which could arguably be associated with science fiction, the man who wrote the books originally was using the character to ridicule German society. In the next breath Goebbels and Hitler ordered a ban on the movie "Frau im Mond" because it depicted rockets so accurately. One never knows what will motivate a politician or a general to make a decision but if you were as smart as those guys were you were always going to stand out.

The second part of your question about aliens is interesting. Sometimes it is the most mundane of reasons which causes something to happen. To the best of my knowledge, John Campbell, the man who wrote Asimov's paycheck in the early days, never had aliens in his stories and so Asimov quite astutely realized that if he didn't have them in his own stories he had a better chance of Campbell buying from him. Once he was out from under Campbell's thrall, he wrote The Gods Themselves, which has the most convincing and astonishing aliens in it. Asimov also was a fan of Stanley Weinbaum, in part because of his ability to write convincing aliens.

John Grayshaw: With the Foundation was Asimov warning us of how easily civilization can fall and plunge into chaos?

Frank White: Yes, with his sense of history, he would have seen how often powerful civilizations collapsed, often imploding because of internal weakness. He must have had an understanding that civilizations and empires are inherently fragile.

Robert Godwin: No question. The Foundation story was initially inspired after he had read Edward Gibbon's "Decline and Fall of the Roman Empire." He pitched the idea to Campbell who then told him to go for it.

John Grayshaw: I was struck by how accurately *The Naked Sun* predicted behavior in the computer age. As our technology continues to increase will humans become more and more anti-social like the Solarians? Is there any way to change it?

Frank White: I don't think there is any way to go back, an argument I make in my book on AI, *The (Neo) Singularity is Here!* We are actually more social in some ways, but it is mediated by technology that is going to be almost impossible to give up. We are evolving into a very different future from what we have seen in the past.

Robert Godwin: The main difference between 21st century Earth and Asimov's utopian off-world planets is that we still can't get off-world. There are no back up planets and so I think we are more likely to end up like Bailey's Earth than the Solarian colonies. Will we get as bad as Forster's "The Machine Stops"? I doubt it. We'll run out of resources before it gets like that.

John Grayshaw: In "I, Asimov" he states that the novel "The Gods Themselves" especially the second section, was the "biggest and most effective over-my-head writing that I ever produced" what did he mean by that?

Frank White: I don't know but I have had that feeling about some of my writing. I think there are times when you are writing on cruise control, using familiar neuronal pathways and other times when you are really stretching, out on the frontier of your own capacity.

Robert Godwin: It was his first attempt at trying to write from the perspective of a truly alien intellect. Challenging for anyone - even him.

John Grayshaw: What writers did Asimov like when he was growing up?

Frank White: Sorry, I don't know.

Robert Godwin: EE Doc Smith, Stanley Weinbaum, Wells, Eando Binder, Horace Gold, John Campbell. Probably dozens of others since he read voraciously his whole life. He would sit in his father's corner store watching the counter and reading all the pulps that came through the place. He then went on to anthologize many of those same authors later in his life. His Great SF Stories series of more than two dozen books will give you a sense of the authors he liked.

Eva Sable: Were there any of his own works he regarded as personal favorites? What about those of other authors?

Frank White: I don't think he had much time to read because he was writing all the time.

Robert Godwin: I seem to remember he had developed a soft-spot for *Nightfall*, although he never considered it his best work and he resented the fact the Campbell added a paragraph at the end which changed the setting. He liked his story *Robbie*, which was rejected several times early in his career. He frequently praised Stanley Weinbaum. So many of the people we recognize as the "great" writers of SF were his contemporaries. Van Vogt, Heinlein, Clarke Sturgeon etc. He would frequently make fun of them but in the next breath praise them. He famously took shots at Clarke at the premier screening of

2001 A Space Odyssey complaining that HAL was breaking first law! He loved the Doc Smith Skylark series as a kid.

D'Arcy Ward: Who were some of Isaac's favorite SF writers. What did he think of more abstract writers like Bradbury?

Frank White: Please see previous answer.

Robert Godwin: I sat talking to Bradbury about Asimov and there was an immense shared respect between them. I think Asimov and Heinlein were initially jealous that Bradbury was able to break into the mainstream newspapers and magazines when they couldn't (initially) but they also recognized it was because of the poetic lyricism of Bradbury's style. Asimov said he didn't want to write poetically, only clearly. On the other hand Bradbury was always in awe of science and scientists and wished he knew how to understand science like Asimov, Clarke and Heinlein.

SFBC Member: I'd also like to know which non-sci-fi writers and subjects he enjoyed.

Frank White: See previous answer.

Robert Godwin: He became an expert on everything from Shakespeare to Don Juan. He wrote a massive volume on the Bible. He loved Conan Doyle. He studied the lives of hundreds of scientists and engineers, everyone from Faraday to Watson and Crick. He then wrote massive biographical encyclopedias on these people, laced with insights. He loved limericks. He had a wicked sense of humour which came across in his essays and letters.

John Grayshaw: What genre did Asimov prefer to write? And what did he like best about each genre, Science Fiction? Mysteries? And Non-Fiction?

Frank White: Once again, I can only speculate as a writer, but I suspect he enjoyed all of these forms. Often, one feeds into another. For example, when I wrote The SETI Factor, I had a lot of ideas that did not fit nicely into a book with footnotes and scholarly language. So I wrote Decision: Earth, a novel that brought out those ideas in a different format. One great thing about fiction is that you can have your characters express leading-edge or controversial ideas and it becomes a way of safely exploring your own thoughts as a writer.

Robert Godwin: I think that changed during his life. He went through phases. He loved writing non-fiction in the 1960s and 70s. But fiction probably paid the bills better than non-fiction. He also said that Science Fiction was his "first chief literary love". He famously relinquished the high ground to Arthur Clarke in their treaty wherein they agreed that they would always say that Clarke was the best science fiction writer and Asimov the best science writer. It was all done in jest but I doubt he would have relinquished that estimable spot if he hadn't preferred to be known for his non-fiction!

Heather Prince: Did he enjoy writing novels or short stories more?

Frank White: Please see previous answer.

Robert Godwin: I don't know the answer to this. I don't think he really distinguished later in life. Of course at the beginning of his career there were no publishers actually willing to publish a science fiction novel so short stories was all there was. I think he liked writing so much it likely didn't matter to him. He was probably just as happy when he came up with a snappy limerick.

Heather Prince: Did he prefer to read science fiction or did he primarily read outside his chosen writing genre?

Frank White: I don't know.

Robert Godwin: I can only imagine what he read in his lifetime. If I was to guess I would say that reading science fiction probably diminished as he got older. He spent many years writing non-fiction and that must have required an inordinate amount of research. Whether he preferred that to a good novel is not something I can answer.

Richard Whyte: Did Asimov's 'creative process', broadly speaking, stay the same from one project to another?

Frank White: He seemed to be a very focused and disciplined person and I suspect that it stayed consistent.

Robert Godwin: To the best of my knowledge, like any other writer he honed his skills over many years. But it seems he read a lot, then wrote a lot and begrudged being taken away from his typewriter right up until his last days on earth.

Richard Whyte: Asimov was a famous typewriter user, and although he started using 'word processing' software for drafts in the early 1980s, he stayed true to his typewriter for his final drafts long after his contemporaries moved exclusively to word processors. Do you think his style changed when he started using a computer, or was it, as he said, just a means for improving his productivity?

Frank White: I think it was just a means of improving productivity.

Robert Godwin: I didn't notice a style change. He just seemed to expand his horizons every year. You never knew what he would write about next. There was always this restlessness about him, as though he needed to know everything. He struggled with the computer at first and I don't think he was ever happy with it. However, the typewriter forces you to be much more careful about the words you choose, even after the invention of white-out. His fiction was expansive and compelling and easy to read. His non-fiction was blessed with a level of clarity that most of us struggle to accomplish when we are just talking.

Ed Newsom: With his output, the image I have of Asimov is of a man sitting alone in a room, either researching or writing constantly. Is this accurate? Did his work curtail his social life?

Frank White: I think that is accurate. I read that he was invited to watch the Apollo 17 launch at Cape Canaveral but they had a hard time getting him out of his room at the moment of the launch, because he was typing out yet another book.

Robert Godwin: As in my previous answer above. I have the same image. He always said he wanted to die slumped over his typewriter. As for curtailing his social life...I think his phobias about travelling probably contributed more to curtailing his social life. A trip to the Appalachians was a major effort for him.

Heather Prince: How did fame change him? Did it change how or why he wrote?

Frank White: I don't believe it changed him at all. When I met with him to do my interview for The SETI Factor, I was struck by the fact that he and his wife lived in a very modest apartment in New York City. He could have afforded something far more luxurious but that didn't appeal to him, I suppose. He was also very kind to me on that occasion and there was no hint of "I'm a famous writer and I am doing you a big favor talking with you." Also, he lived for a time in Newton, MA, where I lived at the time when I was writing the books with him. One day, I took a package to the Post Office with his name on it. The postal clerk said, "Oh, he used to come in here all the time. He was a very nice guy."

Robert Godwin: I wasn't there to see. However, the only evidence of change in his writings was a level of confidence, especially in his little personal interludes which he would inject into anthologies. He began to realize that making jokes about himself was one of the things that endeared him to his fans and so I think he did more of that as he became more established. He was a great raconteur and could hold forth with fans and friends alike and keep everyone entertained. Clearly fame also allowed him to capitalize on his name with a string of semi and fully autobiographical works, e.g. The Early Asimov, In Memory Yet Green, I, Asimov etc.

Kevin Kuhn: I know Isaac Asimov was a genius, but was there anything else from his childhood that explains his ability to think so expansively (stories across many world, many species, spanning ages, etc.) and creatively? Did he travel a great deal, learn multiple languages, learn a musical instrument, etc.?

Frank White: I don't know. I believe he was a professor at the BU School of Medicine for some time. It may have had an impact on him.

Robert Godwin: He took a course in writing when he was 14 years old at his High school which he said was what got him started. He had the gift of being in the right place at the right time to be able to get on a train and visit John Campbell almost any time he wished. Campbell was truly a great editor who nurtured Asimov's burgeoning talent. He barely travelled at all beyond the boroughs of New York. I think he spoke some Yiddish. He read a lot, from a very early age and loved spending time in the New York library. The only other explanation that I have for his genius is that he was wired that way. A miracle of nature.

John Grayshaw: How did Asimov research his books? Did he depend on the NYC Public Library? And since I know he didn't like to fly did he ever hit a wall with research, finding out that he'd have to travel to do it?

Frank White: I don't know.

Robert Godwin: See above. He once remarked that the only subjects he hadn't written about were economics and sports because he wasn't interested in either of them. I'm sure there must have been moments when he hit a wall, we all do, but his comfort seems to have outweighed any desire to travel

to solve the problem. Notably the New York library system is likely one of the best on Earth so he could probably find most anything there if necessary.

John Grayshaw: In his entire life did Asimov ever having writer's block?

Frank White: I don't think so. He always had three typewriters going, each with a different book. This is a good way to avoid writer's block. If you find that you are stuck with one book, you can turn to another for a while, and then return to the original one with fresh ideas.

Robert Godwin: As mentioned earlier he was despondent for a short time when he thought science fiction had left him behind. He said that he painted himself into a corner by making the first Foundation story end on a cliffhanger when he hadn't actually written the sequel. He then struggled to get it done in time to make Campbell happy. He ended up breaking the writer's block with some helpful suggestions from Fred Pohl. However, I can't imagine any universe in which Isaac Asimov would have been lost for words for very long.

John Grayshaw: Frank and Robert, thank you for your time!