Barbara Mravunac

University of Zagreb

Defining Social Science Fiction on *The Caves of Steel*

Building on Darko Suvin's definition of science fiction, this paper argues how the genre, written so creatively imaginable, narrates an impossible, yet, plausible story. It also presents us with an interdisciplinary conversation between social sciences and SF literature, which opens up important social questions. The two premises are discussed on the example of Asimov's novel *The Caves of Steel*. Although the novel is an SF novel, it can be approached as a piece of social criticism. Essentially, it is a detective story, but it deals with fears, stereotypes, colonization, technology, social evolution and the definition of humanity.

Isaak Yudovich Ozimov (Isaac Asimov) was an American author born in January, 1920 in Petrovichi, in the Russian Soviet Federative Socialist Republic. When he was three years old, his family decided to immigrate to the United States. The Asimovs were Jews. In the USA, his parents owned a candy store which sold newspapers and magazines, providing young Asimov with an interminable supply of reading material. Around the age of 11, he started writing. As he was very fond of science fiction pulp magazines, Asimov was destined to write SF. He earned a PhD in biochemistry at Columbia University and not long after he became a professor at Boston University. During the Second World War, he served in the U.S. Army. Afterwards, he married

twice, had two children and became close friend of Kurt Vonnegut, Carl Sagan and Gene Roddenberry, the creator of *Star Trek*. In his later years, he was the president of the American Humanist Association, the organization that advocates secularization, human rights and pacifism. Isaac Asimov died in 1992 and, in his honour, a crater on the planet of Mars and an asteroid have been named after him.

Asimov's wide interest in science made him a prolific author. He wrote books and essays on history, mathematics, astronomy, biology, chemistry, and science in general. Moreover, he wrote *Asimov's Guide to Shakespeare* and *Asimov's Guide to the Bible*. However, he is considered one of the greatest writers of Golden Age of Science Fiction and a master of the science fiction genre. He wrote science fiction and fantasy novels, as well as mystery and detective stories. His most famous works are the *Foundation* series and the *Robot* series. The two series are set in the same fictional universe. In the *Foundation trilogy* Asimov came up with a new word, 'psychohistory', that stands for a branch of mathematics or mathematical sociology that can predict the future. Along with the term, *Oxford English Dictionary* credits Asimov's writing for two more new words: 'positronic' and 'robotics'.

Asimov started writing the *Robot* stories in the 1950s. The series consists of 38 short stories and 5 novels. The first and probably best known story is "I, Robot." *The Caves of Steel* is the second novel of the *Robot* series. The stories of the *Robot* series are set thousands of years in the future and they deal with conflicts between people from the overcrowded Earth and Spacers, who left the Earth long time ago and emigrated to space. Spacers use a large number of robots as servants, they have a high standard of living because of which their lifespans reaches 400 years, but everything is not perfect; they do have some problems, such as low population growth and a weakened immunity.

¶

The protagonists are Elijah Baley, a detective, and R. Daneel Oliwah, the latest high-tech robot which cannot be distinguished from any man, because he perfectly resembles the human form. That is why it is preferred to refer to him as a *he,* not an *it.* Note that the 'R' is abbreviated from *robot.* He also has some special features, for example, he can scan people's hormone levels and clearly interpret data, or translate them into emotions. He is sent to the Earth to cooperate with Baley on the case of a murder that took place in the Outer Space. It is suspected that someone from a group of so-called Medievalists committed the crime. Medievalists are people who believe that the Earth would be better if there were no robots. They sometimes provoke riots because they feel that robots are taking their jobs away, and therefore making them unemployed, poor and miserable.

Asimov also came up with the concept of the C/Fe society, C standing for carbon and Fe for iron, the chemical elements, and it expresses a culture that combines the best of human life and robot life. The fundamental feature by which all robots in Asimov's universe operate is the Three Laws of Robotics. Asimov said: "[in] 'Runaround' I listed my Three Laws of Robotics in explicit detail for the first time . . . At least, they are quoted in and out of season, in all sorts of places that have nothing to do with science fiction" ("Introduction" 4):

1. A robot may not injure a human being or, through inaction, allow a human being to come to harm.

2. A robot must obey the orders given it by human beings except where such orders would conflict with the First Law.

3. A robot must protect its own existence as long as such protection does not conflict with the First or Second Laws (Asimov quoted in McNelly 65).

Alessandro Portelli stated in his paper "The Three Laws of Robotics" that some confusions may arise in the interpretation and application of the three laws: "[r]obots become thus endowed with a psychology of sorts: they have doubts, conflicts, pain, fears. The Three Laws turn these machines into literary machines, capable of producing narrative effects" (151). Here is the emphasis on mimicry because these rules mimic morality.

On one occasion, Baley talks of the Bible to R. Daneel: "[v]arious portions of it, when properly interpreted, contain a code of behaviour which many men consider best suited to the ultimate happiness of mankind" (*The Caves* 160). After perfectly describing it, he tells him the parable of Mary Magdalene, who was caught in adultery, and of the people who wanted Jesus to punish her. Jesus ignored their demand and invited the ones who are without a sin to cast a stone first. Of course, everybody gave up their accusation and left Jesus and Mary Magdalene, who was forgiven for her sins. R. Daneel cannot understand how come the former law could be disobeyed, to which Baley responds: "[n]one of the accusers felt he could after Jesus's statement. The story is meant to show that there is something even higher than the justice which you have been filled with. There is a human impulse known as mercy; a human act known as forgiveness" (*The Caves* 161). R. Daneel's response is that he is not acquainted with those words. This proves the point and confirms that machines will never be able to evolve up to the human level, because there is no program that will awake their capabilities to feel real pain, real emotions, real empathy. There could be a chance of inventing impulses which could elicit a robot to mimic programmed behaviour, but it would not be the original robot's reaction. As Portelli states: "[i]t remains for the wisdom of mankind to make decisions by which

advancing knowledge will be used well. Should science ever go out of control, it will not be because of its inherent characteristics, but through the fault of mankind" (150).

Joseph Miller, in his article "The Greatest Good for Humanity," debates on Asimov's fictional universe and utilitarianism[5] as its guiding principle. In *Robots and Empire*, two robots find themselves in a situation in which behaving according to the Three Laws turned out to be insufficient, incongruous and therefore, obsolete. That is the moment when R. Daneel expands the meaning of the First Law and substitutes the word 'human' for 'humanity'. As the motto of utilitarianism is *the greatest happiness of the greatest number,* this shift from 'human' to 'humanity' contributes to the argument that Asimov's series are rooted in utilitarianism, and thus proves Miller's postulation right. Ultimately, it is Daneel who first articulates the incompleteness, arguing that "[t]he tapestry of life is more important than a single thread. Apply that not to Partner Elijah alone, but generalize it and-and-and we conclude that humanity as a whole is more important than a single human being." Daneel thus concludes that "[t]here is a law that is greater than the First Law: A robot may not injure humanity or, through inaction, allow humanity to come to harm" (*The Caves* 195).

There is sometimes "the superstitious, even paranoid sense that machines all possess the potential to turn on us, to go mad, to express their character" (Roberts 117). Three laws of robotics are rules that are implemented in robot's program and they constrain them from injuring people, make them obey every human's order and make them protect themselves as long as it does not conflict with the First and the Second Law. These rules mimic a moral code: "Asimov's robots are supremely ethical

---

5 Utilitarianism is a moral theory founded by Jeremy Bentham in the late 1790's.

machines" (117) and they are fundamentally law-abiding. And "[a]s we do not expect an auto mobile or a light bulb to revolt" (Portelli 150), we should not be afraid of robots becoming self-aware. What humans have created had already been predetermined by their guidelines. There is no danger in the very machines, but in the man himself!

The title of the novel refers to megalopolises in which the Earthmen live. This kind of city is closed, similarly to shopping malls. There is no natural sunshine, people cannot see when it rains, and there are strips used for transportation. The government provides people with some sort of birth control in the form of laws and regulations that have to be followed. The reproduction policy is prescribed by the government in order to control the population rate: "[i]t was in their first year of marriage, and their baby had not yet come. In fact, it had been the very month in which Bentley was conceived. (The I.Q. rating, Genetic Values status, and his position in the Department entitled him to two children, of which the first might be conceived during the first year.)" (*The Caves* 39). People eat at community kitchens and take baths in public bathrooms in order to save extra space. Everything outside of these metropolises is called the Outer World, and the "inner world" is (too) well organized. People in the novel live in their bubbles, closed in their womb-cities, abiding far too many rules and making up ludicrous reasons why they shoud not leave the Earth:

> Baley had the picture of an Earth of an unlimited energy. Population could continue to increase. The raw minerals could be brought in from the uninhabited rocks of the System. If ever water became a bottleneck, more could be brought in from the moons of Jupiter. Hell, the oceans could be frozen and dragged out into Space. There they would be, always available

for use, while the ocean bottoms would represent more land for exploitation, more room to live. (*The Caves* 143)

At the end of the novel, it is revealed that the murder was only a cover for an experiment which was undertaken by Spacers. The actual goal was to find out if there was any hope for humanity to change its course by changing people's view on staying on the Earth. The outcome of the experiment was that the colonizing the galaxy in the future, in order to survive, was possible. This makes the main idea of the novel the following:

> You spoke to Francis Clousarr of the advantages of colonization. And Clousarr's cerebroanalytic properties changed. Very subtly, to be sure, but they changed. . . . It demonstrated conclusively that the Medievalist mind is open to that sort of conviction. I made the proposition of a school for emigrants as a way of insuring his children's future. He rejected that, but again his aura changed, and it seemed to me quite obvious that it was the proper method of attack. The Medievalists will eventually turn away from Earth. He will need robots and will either get them from us or build his own. He will develop a C/Fe culture to suit himself. (*The Caves* 186-87)

Essentially, *The Caves of Steel* is a detective story. And Asimov introduced SF as a part of a crime story, thus showing that science fiction can be found in mystery novels. So, he is to be credited with merging the genres. Also, this novel is considered to be the best example of merging the SF and detective genre. Of course, it can be approached as social criticism as well, since it deals with fears, stereotypes, colonization, technology, social evolution and the notion of humanity.

Darko Suvin, in his paper "On the Poetics of the Science Fiction Genre," argues that:

SF shares with myth, fantasy, fairy tale and pastoral an opposition to naturalistic or empiristic literary genres, it differs very significantly in aproach and social function from such adjoining non-naturalistic or meta-empirical genres. Both of these complementary aspects, the sociological and the methodological, are being vigorously debated among writers and critics in several countries; both testify to the relevance of this genre and the need of scholarly discussion too. (372)

Suvin describes SF "as the literature of cognitive estrangement" (372) and he defines it as "a verbal construct whose necessary and sufficient conditions are the presence and interaction of *estrangement* and *cognition*, and whose main device is an imaginative framework alternative to the author's empirical environment" (quoted in Roberts 8). Adam Roberts helps us understand the terms better and he claims that cognition stands for "logical implications which refer to that aspect of SF that prompts us to try and understand, to comprehend, the alien landscape" (8). While estrangement stands for the alienated, "an element of SF that we recognize as different, that estranges us from the familiar and everyday" (8). One of the examples for cognitive estrangement in the novel is R. Daneel's visage, which is identical to human because Asimov upgrades something technological that exists in his empirical environment using an imaginative, but strong inherent logic at the same time. Moreover, the interaction of the two, the cognition and estrangement, constructs the main formal device, the *novum*.

Suvin coined the term *novum*, a key point of difference that differentiates the fictionalized world from the world we recognize around us. To Suvin, a novum is "a strange newness" (373). What is more, novum is a crucial separator between SF genre and other forms of imaginative and fantastic literature because, according to

Roberts, "novum acts as symbolic manifestation of something that connects it specifically with the world we live in" (14). When thinking about nova and *The Caves of Steel*, one should connect the symbolism with its very title, with the notion of the Three Laws, the C/Fe society, robots and people living in the Outer Space, and with the notion of the technology. Of course, nova are ruled out as impossible by science, but through narrative, nova provide us with "rationalizations of these impossibilities in terms that sound like scientific discourse" (Roberts 9). And this is a discourse built on certain logical principles that avoid self-contradiciton. That is why the whole story about robots sounds so plausible. Therefore, it is by all these concepts that the formal device, novum, has been realised.

Suvin considers SF as a symbolic system which is centered on a novum that is to be cognitively validated within the narrative reality of the tale. Additionally, I quote Roberts:

> The point of SF is to be less spiritual and more material; and this point of view enables us to look at the limited range of nova deployed in most science fiction not as a narrow and exhausted set of clichés, but as a supple and widereferencing body of material symbols which are drained of transcendental or metaphysical aura and relocated back in the material world. (14)

The alternative world of SF must reflect the constraints of science. It is a certain challenge to command over the language of science, and Asimov, surely, succeeds in doing so. Likewise, Roberts argues that cognitive plausibility, or cognitive estrangement, is almost a synonym for science fiction.

Willis McNelly states that "SF writers deliberately alter our world so that we may look upon it more clearly, or to recognize how they accomplish that alteration"

(63). Asimov indeed takes something from his historical moment and builds his conjectural universe, which is radically discontinuous from his own, in order to examine human problems cognitively. Interestingly, the novel was published in the same year in which the case Brown vs Board Education[6] took place, which marks the beginning of the African-American Civil Rights Movement. McNelly confronts us with one interesting and complicated question—"*When* is a being human?": "[If] you have a being who follows an ethical system as high or even higher than any developed throughout civilized history, is that being not human?? His robot heroes, such as R.Daneel Oliwah, always act by a set of ethical standards as high-usually higher-than those of human counterparts. When, then, is a being human?" (65-66). Asimov's robots permit us to distance ourselves from humanity in order to observe it more clearly. McNelly claims that "Asimov has consistently asked, implicitely or often explicitly, what the difference is between his positronic robots and human beings" (66). Accordingly, what is the difference between African-Americans and Caucasians? In a way, Asimov requires from the reader to look at the issue of segregation and re-examine their view on African-American people. As the novel confronts us with the question when is a being human, the juxtaposition of C/Fe and post-WWII American society enables the reader and urges them to observe the contemporary problem more readily, "without the prejudices inherent in the very word 'human'" (70). Edward James shares the same view. He sees robots as a manifestation of the position of black people in the USA at the time: "[i]t is difficult not to see Asimov's *Caves of Steel*, with its robots who take ordinary people's jobs and even "pass for

---

6 Brown vs Board Education is a landmark US Supreme Court case in which the Court declared state laws establishing separate public schools for black and white students to be unconstitutional.

human", as a comment upon relations between whites and blacks in America" (James qouted. in Roberts 117).

There are many reasons why the novel is still considered so important for contemporary society. One of them is the idea of someone else taking your job away, which is not something new. Besides projecting the fear onto African-Americans, there might be a fear more similar to the one from the novel. Khannea Suntzu discussed it in Rijeka at Republika Fest (2013). In her speech "The Good, the Bad and the Ugly of the Next Few Decades," she enumerated seven problems (financial, petrochemical, atmospheric, political, employment, complexity, overpopulation) by which "humanity has become trapped in a completely unsustainable economic and post-industrial system." She also touched upon the issue of unemployment by stating that "automation destroys jobs". She claims that society changes too rapidly according to the rules of technology. She names the phenomenon the *technological unemployment*: "[t]he trend is towards a lot of people losing their jobs, because producers of goods and services will be able to make considerably more money if they don't have to pay wages."

Nowadays, we are aware of the fact that robots are being made for various purposes. Take *Rene* for an example—a joint project of the Faculty of Education and Rehabilitation Sciences and the Faculty of Electrical Engineering and Computing in Zagreb. The researchers came up with a robot whose purpose is to help autistic children by collecting data on the child's behaviour (Robotics Trends). Note that the novel was written in 1950s when robots and such modern technology still did not exist. Asminov states: "[w]hen I wrote my robot stories I had no thought that robots would come into existence in my lifetime . . . Yet, here I am, forty-three years after I wrote my first robot story, and we do have robots . . . To be sure, these robots are

not as intelligent as my robots are . . . However, they are evolving rapidly and becoming steadily more capable and versatile" ("Introduction"). Moreover, the 1950s are known for rapid development of Western society after WWII and great investments in technology. So, the novel represents one of the possible outcomes of the current empirical world, just like it did for Asimov at that time. *The Sociology of the Possible*, a book reviewed by William Wilson, enumerates a number of SF novels, among which *The Caves of Steel* as well, and states that they offer readings that "afford the reader the opportunity to consider alternative ways in which societies may be organized and/or undergo change, and the manner in which individuals in a given society react or adapt to possible social arrangement" (967). Thus, the novel makes you question technocracy[7] as a kind of society or a stage of society. It is beyond arguing that it deals with relevant humanity topics.

To conclude, "[Suvin] argues that to have value a SF tale needs not only metaphoricity but also 'coherence and richness'" (Roberts 136). Asimov's universe certainly proves the richness and coherence. Gerlach and Hamilton back this up by saying that social SF is "a rich and flexible mode of thought for examining key issues of late modernity" (162). The SF genre postulates "a spectrum or spread of literary subject matter, running from the ideal extreme of exact recreation of the author's empirical environment to exclusive interest in a strange newness, a novum" (Suvin 373). Hopefully, this paper, on the example of *The Caves of Steel,* demonstrates how the genre acts as a "powerful critical tool to analyse social reality" (Gerlach and Hamilton 170), and presents the novel as an encounter of social science and science fiction.

---

7 Technocracy is a social or political system in which people with scientific knowledge have a lot of power.

Works Cited

Asimov, Isaac. *The Caves of Steel.* London: Harper Collins Publishers, 1997. Print.

---. "Introduction." *The Complete Robot.* Granada Publishing (1983): 1-5. Print.

Gerlach, Neil, and Sheryl Hamilton. "A History of Social Science Fiction." *Science Fiction Studies 30.2* (2003): 161-73. *JSTOR.* Web. 2 Jan 2016.

McNelly, Willis. "Lawrence Durrell's Science Fiction in the True Sense." *Rocky Mountain Review of Language and Literature* 30.1 (1976): 61-70. *Project MUSE*. Web. 21 Mar 2016.

Miller, Joseph. "The Greatest Good for Humanity: Isaac Asimov's Future History and Utilitarian Calculation Problems." *Science Fiction Studies* 31.2 (2004): 189-206. *JSTOR.* Web. 10 Jan 2016.

Portelli, Alessandro. "The Three Laws of Robotics: Laws of the Text, Laws of Production, Laws of Society." *Science Fiction Studies* 7.2 (1980): 150-156. *JSTOR.* Web. 10 Jan 2016.

Roberts, Adam. *Science Fiction Second Edition.* Taylor & Francise e-Library, 2006. PDF.

Robotics Trends. "Using Robots to Diagnose Autism in Children." EH Publishing, 2015. Web. 2 Jan 2016.

Suntzu, Khannea. "The Good, the Bad and the Ugly of the Next Few Decades." Rijeka: Republika Fest (2013). Web. 2 Jan 2016.

Suvin, Darko. "On the Poetics of the Science Fiction Genre." *College English* 34.3 (1972): 372-82. *JSTOR.* Web. 28 Jan 2013.

Wilson, William. "Book Reviews." *American Sociological Review 36.5* (1971): 966-67. *JSTOR.* Web. 10 Jan 2016.