these issues in his works and life. History has shown the prejudice and persecution that man is capable of because of religion and sadly, it persists till today. Asimov believes that for the progress of humanity, such delusions must be left behind and only then can mankind truly come together to find solutions for its existential problems.

Chapter V: Conclusion

Patricia Warrick in an article entitled, "Ethical Evolving Artificial Intelligence: Asimov's Computers and Robots," argues that Asimov's robots are programmed to regard "John Stuart Mill's concept of 'the greatest good for the greatest number'... as the essential element in the criteria for designing the (behaviorist) ideal" (191). Taking this a step further, J. Joseph Miller in his essay, "The Greatest Good for Humanity: Isaac Asimov's Future History and Utilitarian Calculation Problems," argues that Asimov's extended future history as it is articulated in *The End of Eternity*, the *Robot Series* and the *Foundation Series*, and the major social themes in Asimov's social science fiction are ultimately motivated by utilitarianism. Throughout his future history:
...Asimov expresses a commitment to promoting the greatest good for all of humanity, an explicitly utilitarian goal. One of the central questions in his fictions is how best to go about in achieving that goal. (Miller, 189).

According to Miller, the progression of the series from the Robot Series to the Foundation Series, can be read as Asimov’s attempt to find solutions to a set of problems faced by utilitarianism that he refers to as calculation problems. Though Asimov himself never claimed that his future history is an exercise in utilitarian moral theory, Miller says, “but that is hardly surprising, for few outside of the world of professional philosophy explicitly attach labels to their moral beliefs.” (ibid)

Utilitarianism can be broadly divided into three classes, each with a different thrust to their ideology. Utilitarians such as Bentham, Mill, Peter Singer and David Hume hold that morality really is fundamentally concerned with producing the best overall consequences. The second class includes philosophers like Kant, Locke and Rawls, and they are of the opinion that morality is crucially concerned with the protection of autonomy. The third class of utilitarians, also known as the virtue theorists, which include philosophers like Aristotle, Aquinas, and Nussbaum, hold that character is what counts most in morality. Utilitarianism predicates what is known as a consequential theory i.e. the consequences of an action
determines the rightness and wrongness of the said action. To a utilitarian, a particular course of action is deemed right or wrong if the results of that action produce the maximum positive outcome or happiness than any other course of action available. This simple formulation of utilitarian principle has led to the association of utilitarianism with the slogan, “The greatest good for the greatest number.” Utilitarians have, however, objected to this oversimplified slogan as utilitarianism is far more complicated than just what it implies. The first systematic formulation of utilitarianism belongs to Jeremy Bentham, usually credited as its founder, who explains the principle in *The Principles of Morals and Legislation*:

> By the principle of utility is meant that principle which approves or disapproves of every action whatsoever, according to the tendency which it appears to have to augment or diminish the happiness of the party whose interest is in question (190).

Here Bentham advocates maximizing what contemporary philosophers have come to call “expected utility.” The idea, according to Bentham, is that the right action is the one that, all things considered, is most likely to produce the best set of consequences. Producing a method for determining exactly which action is most likely to produce the greatest total amount of happiness now becomes the first objective for the utilitarian. Since utilitarianism is a consequentialist theory and thus assesses rightness
and wrongness based upon consequences, the first step for a utilitarian in determining whether an action is the right one to perform is to determine its consequences. The utilitarian principle is beset with a number of problems and objections. One immediate problem is that it relies upon an assessment of the probabilities of various consequences and these probabilities can misfire, sometimes quite seriously, with the result that an action whose expected utility is quite high turns out to be really disastrous. This has resulted in a number of utilitarians wanting to redefine the theory differently. John Stuart Mills states that utilitarianism is:

"the creed which accepts as the foundation of morals 'utility' or 'the greatest happiness principle' holds that actions are right in proportion as they tend to promote happiness; wrong as they tend to produce the reverse of happiness" (6).

In this definition, the results or consequences of an action are seen as a matter of fact, i.e., the consequences are exactly as intended by the action. This requires that the person committing the act be able to accurately predict the future. The requirement that a utilitarian be able to pick out the best set of consequences gives rise to a number of objections to utilitarianism. In his essay, Miller has identified three major objections to utilitarianism. The first objection is that the number of possible consequences for the right action is too vast, and since the right action cannot be taken until all possible
consequences have been considered, therefore, there is inadequate time to
determine all possibilities before the right course of action is chosen and
taken. The second objection is that it is extremely difficult to decide which
consequences may be the best as different individuals will have a different
scale of value for each result. Simply put, what brings great happiness to one
may not bring as much happiness to another. Third, even if confined only to
maximizing expected utility, it is hard to know with reasonable certainty
what the probabilities of each consequence would be. Utilitarians have
recognized these problems and have worked out different methods to rectify
these problems. Asimov too, recognizes these problems and in his works
offers "science-fiction" solution for them.

In the previous chapter, the problem of finding solutions for the
benefit of humanity in The End of Eternity has been examined. It can be
argued that the impulses that transform Eternity from a trade empire into a
"benevolent" agent for social improvement are motivated by utilitarian
principles since the driving force behind Eternity is preventing misery and
producing maximum happiness through stability. Even the reason for ending
Eternity itself can be seen as a utilitarian reason as it turns out that humans
are better off if freed from the guidance of Eternity or at least there will be
more total happiness in the world. Here, Asimov is providing an interesting,
albeit unlikely, way of resolving the first objection to utilitarianism. Since
the Eternals operate outside of normal time, they can take as much time as
needed to list out all eventual consequences of an action: Also, the third
objection to utilitarianism, i.e., the difficulty of determining of the
probabilities of certain outcomes, can be resolved in Eternity as the Eternals
can actually view the consequences of their work. In \textit{Robots and Empire}, the
Zeroth Law is very similar to utilitarianism. The change from the First to the
Zeroth Law is influenced by the notion that humanity in the abstract can be
harmed, that some action can have the effect of making humans in general
worse off than they otherwise would have been. At the close of the novel,
Daneel encourages Seldon to develop psychohistory as he sees in it a
solution that he and Giskard have faced for thousands of years:

\begin{quote}
The trouble is, Hari, that a human being is easy to identify. I can point to
one. It is easy to see what will harm a human being and what won't-
relatively easy at least. But what is humanity? To what can we point when
we speak of humanity? And how can we define harm to humanity? When
will a course of action do more good than harm to humanity as a whole
and how can one tell? (429)
\end{quote}

In articulating the problem of defining humanity in order to serve it, Daneel
is also stating a utilitarian calculation problem. Psychohistory offers Daneel
a solution to this problem:
When you made your speech to the Decennial Convention, I realized at once that in psychohistory there was a tool that might make it possible to identify what was good and bad for humanity. With it, the decisions we would make would be less blind. I would even trust to human beings to make those decisions and again reserve myself only for the greatest emergencies. (429)

For Daneel, psychohistory is a tool to determine what actions will produce the greatest good for humanity; it is, in effect, a way of solving Daneel's calculation problems. Seldon, at this stage, is still unconvinced whether psychohistory could predict the future. When asked whether he can predict the future, Seldon explains:

Not quite, actually. What I have done is much more limited than that. In many systems, the situation is such that under some conditions chaotic events take place. That means that, given a particular starting point, it is impossible to predict the outcomes. This is true even in some quite simple systems, but the more complex a system, the more likely it is to become chaotic. It has always been assumed that anything as complicated as human society would quickly become chaotic and, therefore, unpredictable. What I have done, however, is to show that, in studying human society, it is possible to choose a starting point and to make appropriate assumptions that will suppress the chaos. That will make it
possible to predict the future, not in full detail, of course, but in broad
sweeps; not with certainty, but with calculable probabilities. (10)

Daneel, however, is convinced that Seldon can develop his paper into a
working theory, and he manipulates Seldon into continuing his work on the
project. Eventually, Seldon does go on to develop psychohistory as a
working science, allowing him to predict the future in a broad sense. After
his death, psychohistorians carry on his plan and it becomes known as the
Seldon Plan. This plan is in Seldon’s words, “enough to remove twenty-nine
thousand years of misery from human history” (37). Seldon’s purpose is to
bring about the greatest amount of happiness for humanity generally as he
finds himself obligated to eliminate human misery whenever he can do so.

This has great similarity with the beliefs of contemporary utilitarian
Peter Singer, who argues in *Famine* that:

...if it is in our power to prevent something bad from happening, without
thereby sacrificing anything of comparable moral importance, we ought,
morally, to do it” (249)

Since psychohistory allows humans to predict future consequences, it
enables them to reliably choose the best course of action. By reducing the
future to mathematical equations, a psychohistorian can calculate future
consequences with reasonable certainty and with relative speed. Also,
through psychohistory, the need to apply specific happiness values to
specific actions is eliminated as it focuses only on mass of human beings and not the individual. The psychohistorians look at the Galaxy as a whole in order to evaluate whether one state of being is better than some other state. In *Foundation, Foundation and Empire,* and *Second Foundation,* Asimov uses religion, trade, economic leverage, military might, and even deception, all with the objective of eliminating or avoiding wars, and bringing peace and economic prosperity to the Galaxy, conditions that allow individual human beings the luxury in which to flourish.

Psychohistory, though it brings stability and solutions to major utilitarian problems, suffers from the flaw that it has to be paternalistic. For psychohistory to work, the larger masses of people have to remain unaware of it and the control of their future lies in the hands of a few psychohistorians. Asimov himself acknowledges psychohistory's paternalistic tendencies in *Foundation's Edge:*

> The Second Galactic Empire—worked out after the fashion of [the psychohistorians]—will be a paternalistic Empire, established by calculation, maintained by calculation, and in perpetual living death by calculation. (423)

As an alternative to the psychohistory, Asimov proposes what he calls “Galaxia.” Asimov describes Galaxia in *Foundation's Edge* by likening it to the cells in a human body:
[Bliss] It [Galaxia] runs itself. Those trees grow in rank and file of their own accord. They multiply only to the extent that is needed to replace those that for any reason die. Human beings harvest the apples that are needed; other animals, including insects, eat their share—and only their share. (368-69)

Yes, it does.... In your own body, don't all the different cells know what to do? When to grow and when to stop growing? When to form certain substances and when not to—and when they form them, just how much to form, neither more nor less? Each cell is, to a certain extent, an independent chemical factory, but all draw from a common fund of raw materials brought to it by a common transportation system, all deliver wastes into common channels, and all contribute to an overall group consciousness. (369)

The establishment of Galaxia serves another utilitarian function, for Galaxia is, in some ways, an ideal solution to the utilitarian calculation problems that Daneel has faced since first formulating the Zeroth Law. Daneel's chief problem is still his inability to pick out what is meant by “humanity.” Psychohistory is one potential solution to Daneel's problem, but it has the weakness of being strongly paternalistic. Galaxia, on the other hand, allows Daneel to avoid considering humanity as an abstraction by simply creating a concrete entity to serve as a placeholder for humanity. Daneel explains:
I engineered the founding of [Galaxia]. If humanity could be made a single organism, it would be a concrete object, and it could be dealt with.

Daneel can now calculate the greatest good for humanity simply by asking what the greatest good is for Galaxia. Thus, he now has a specific entity whose well-being he can calculate. Galaxia provides a motivation for acting in a good utilitarian fashion, for according to Daneel in *Foundation and Earth*, Galaxia was impossible “unless human beings valued the superorganism more than their individuality.” (481) Galaxia requires the individuals to put aside their own interest in favour of the interest of the group as a whole. The overall good, in other words, outweighs the good of the individual. David Brin, the author of the *Second Foundation Trilogy*, has argued that the Galaxia solution “seems to permanently end the adventure of human individuality.” (19). He suggests that Asimov would have eventually rejected Galaxia had he lived to continue the series. Brinn is more sympathetic to the Kantian view that stresses on the commitment to individual autonomy, and he believes that Asimov would have gradually moved the series in this direction. However, Miller does not agree as he believes that Asimov has been very consistent in all his novels and states that
While certainly it is not inconceivable that Brin is correct, any such shift away from utilitarianism would at the very least represent a major paradigm shift for Asimov. (202)

Asimov died on 6 April 1992. On his death, the media poured out a flood of praise on his life and achievements. He was called a "twentieth century Renaissance man" and the "Great Explainer." Dictionary.com defines Renaissance man as "a present day man who has acquired profound knowledge or proficiency in more than one field" (n.pag.). Asimov is truly deserving of this appellation. His books range over nearly every field of science, literature, history, ethics, humanity, social commentary, mathematics, and more. While he is remembered best for his prodigious works of science fiction-- a genre for which he set the standards, dividing the good from the bad, the gold from the dross -- his 466 books qualify him to be called a "one-man Renaissance."

Besides his literary achievements, Asimov is also remembered for his social activism. His immense love for humanity, like many of the characters in his books, compelled him to act and speak out or protest against issues that he felt were harmful to the well-being of mankind. He openly professed his objections to established religions, notions of nationalism and pseudo-scientific beliefs. When he took up the presidency of the American
Humanist Association in 1985, Asimov began work as narrator of the AHKS promotional film, Humanism: Maung Bigger Circles, which remains available today in both film and video format. Also in 1985, Asimov joined with the National Emergency Civil Liberties Committee (headed by Corliss Lamont, the AHA president emeritus) in a lawsuit against the federal government over a rider which had been appended to the funding bill for "magnet schools." The rider prohibited the use of any federal funds under terms of the bill which might be used to promote "secular humanism." Leading education groups joined in voicing opposition, but the issue was rendered moot when, in the next session, the offending rider quietly disappeared.

Asimov had his own personal views on many important topics and with great wisdom and insight, he expressed these views in his own style using wit and humour. A good example of this has been quoted in a tribute article by the president emeritus of the American Humanist Association, Bette Chambers. In "Isaac Asimov: A One-man Renaissance", she quotes:

On censorship and its handmaiden, creationism:

All historical precedents show that the ability to censor and to enforce orthodoxy is a delight that knows no limits. Today "equal time," tomorrow
the world. Today it is your views on science, tomorrow the way you dress and speak and behave.

On pseudoscience and claims of the paranormal:

When a view denounced by scientists as false is, nevertheless, popular with the general public, the mere fact of that popularity is strong evidence for its worthlessness.

On orthodoxy among scientists:

I hope scientific orthodoxies never remain unchallenged. Science is in far greater danger from an absence of challenge than from the coming of any number of even absurd challenges. Science, unchallenged, can become arthritic and senile, whereas the most absurd challenge may help to stir the blood and tone the muscles of the body of science.

On women's rights as a cure for overpopulation:

A high-birth-rate world means women's subservience. Without women's subservience we can't have a high-birth-rate world. Well, then, what about a low-birth-rate world? In such a world, will women be set free? Yes, they will. It is not even a matter of choice. They must be set free. Consider . . . A low-birth-rate world requires women's equality. Without a women's equality world, we can't have a low-birth-rate world. And since it is quite clear that a low-birth-rate world is the price of the survival of our
civilization, it follows that the acceptance of the ideals of women's equality is also the price of survival.... If we try for a low-birth-rate first and feminine equality second, we will get neither; while if we try for feminine equality first and get it, we will automatically get a low-birth-rate as well... Since we don't have much time, the price of survival is feminine equality as quickly as possible – even now (n.pag.)

Also in this article, Chambers quotes Arthur C. Clarkes’ tribute to Asimov:

He stood for knowledge against superstition, tolerance against bigotry, kindness against cruelty - above all, peace against war. His was one of the most effective voices against the "New Age" nitwits and fundamentalist fanatics who may now be a greater menace than the paper bear of communism ever was. (ibid)

As in his life, so also in his works, Asimov reveals his humanistic side time and time again as his central characters work tirelessly for the benefit of human society:

Asimov claimed to be a materialist, a believer in the tenet that everything could be reduced to matter and energy, but matter and energy alone do not account for his boundless appreciation of life... He disliked emphasis on difference; thus he was not in favor of people identifying with culture, ethnicity, or nation. Rather, the ties that bind were more important than those that divide (J. Asimov 179).
In the *Foundation* series and *Robot* series, the stories never focussed on individuals. The main concern or themes of these stories revolve around humankind as a whole. Asimov is more interested in what humanity can achieve together as a whole and did not pay much attention to petty differences within it. In both life and works, he endeavours to stand above such differences and attempts to lead people away from them. This is why he attacks many established notions and beliefs as he feels that they are tools used for prejudices and divisions. Asimov argues that these things are old and obsolete ideals and for the sake of humanity, people have to move away from them and change. He believes strongly in the power of literature, especially science fiction, as a tool to create awareness and bring about change and considers it to be a mirror for society to examine itself. In *I, Asimov: A Memoir*, he expresses the joy derived from reading:

> But life is glorious when it is happy; days are carefree when they are happy; the interplay of thought and imagination is far and superior to that of muscle and sinew. Let me tell you, if you don't know it from your own experience, that reading a good book, losing yourself in the interest of words and thoughts, is for some people (me, for instance) an incredible intensity of happiness (n.pag.)

In *Asimov on Science Fiction*, he emphasises the need for change and the importance of science fiction in foreseeing the direction of this change:
It is change, continuing change, inevitable change, that is the dominant factor in society today. No sensible decision can be made any longer without taking into account not only the world as it is, but the world as it will be...This, in turn, means that our statesmen, our businessmen, our everyman must take on a science fictional way of thinking (n.pag.).

Errol Vieth, in his review of *It's Been a Good Life*, states that Asimov is more than a scientist and his deep appreciation of life and respect for humankind always inform and influence his writings:

He was, then, the archetypal scientist. His understanding of the world and its workings was immense and deep, and it caused him to respond with awe, joy, and gratitude to his existence and to the physical and human worlds that he tried to understand and to explain, with much success, to others. This understanding informed his respect for and appreciation of human life, evinced in his commentaries about human cultural artifacts—namely, his writings on history, the Bible, literature, and comedy (184).

Asimov is an author with a conscience and a great concern for the society he lives in, and his life and fiction is a reflection of that conscience. The concepts that he has been credited with, such as the three laws of robotics and psychohistory, show how by using the science fiction genre, he can expose the inherent problems that beset mankind, and find possible solutions to them. Though both concepts are fictional, researchers and scientists are now studying, with positive results, the possible usage of these
concepts, thus validating the deep insight and views that Asimov holds about the present day world. His humanism influences his worldview and in turn, influences how he creates his art. His characters, much like himself, tirelessly strive towards achieving the greatest good for humanity. The association of his works to social concepts such as historical Marxism and utilitarianism further establish him as a social critic. Though he himself does not claim to have any association with such ideologies, critics and advocates of both ideologies have studied the comparative similarities between the concepts and themes of his fiction with the principles that govern these ideologies. Asimov bravely speaks out against rigid traditions, both religious and nationalistic, basing his objections to traditions are valid arguments that stem from his great concern for the welfare of humanity. The compassion for his fellow man, with which he expresses his critique of contemporary society, always comes through in his fiction and finds great support from his readers. He is an acknowledged Renaissance man since his scope of interest and influence range over a very wide field. Though not the greatest writer in purely literary terms, Asimov has proven that he is an influential figure in the sphere of social criticism as seen from his “social science fiction”—a term he invented to describe the majority of his works.