

Ishmael: An Adventure of the Mind and Spirit. Daniel Quinn. Bantam Books, a Division of Random House Inc., USA. 1995. 272 pp. Price: US\$ 10.17, Rs 599.

Ishmael, the book which won the one time TED TURNER fellowship¹ in the year 1991, questions the rationale of our notions about our role as a member of living community on Earth and thus also challenges the way we treat the world and life around us. Not only this, the author Daniel Quinn extends 'An Adventure of the Mind and Spirit' to lay altogether a new destiny for us as the first among all life forms to have gained self-awareness. The book is in the form of prolonged dialogues between Ishmael – an unusual teacher – and his student, a young man in search of truth.

Ishmael or Ismail is the name of an ancient character that appears in both Christian and Islamic mythology. Son of Hagar (handmaid of Sarah) and Abraham, Ishmael was cast out of Abraham's family by Sarah (Abraham's wife) after having her own son Isaac. Thus, Ishmael is an outcast, 'whose hand is against every man, and every man's hand against him' (from Gen. XVI.12)².

An interesting observation made by Alfred Kazin³ about this historical character is: 'Ishmael's thought consciously extends itself to get behind the world of appearances; he wants to see and to understand everything. He thinks as a bystander, has identified his own state with man's utter unimportance in nature.' Ishmael – an unusual teacher in this fiction work – does reflect these qualities justifying his name.

An unnamed young man, the narrator, finds a peculiar advertisement in a newspaper that reads 'Teacher seeks pupil – Must have an earnest desire to save the world'. It reminds him of his urge in early days to find a teacher who will lead him to something similar to 'saving the world'. But now seeing this advertisement, he finds himself reluctant to believe that there could really be a teacher he once so desperately yearned for. Thus, he was set out to see for himself that it is just another fake call by some self-proclaimed savior of the world. He was shocked and surprised to find a full-grown gorilla – Ishmael – as a teacher in a very ordinary deserted office room. Apart from a chair, the Bible and few books on anthropology it was a sign board reading 'With man gone, will there be hope for Gorilla?' that captured his attention for a while. Soon, Ishmael started talking by thoughts – perhaps telepathically – with the narrator and tells him his own story from the birth place to his becoming a teacher.

Captured in his early childhood from the forests of equatorial West Africa, Ishmael was sold to some zoo in a town-like city in USA. He grew there for several years and it was here that his internal life began quite unnoticed while puzzling out some small matters. Comparing his early life in the Wild with the one in zoo, Ishmael made some interesting observations. For example the matter of feeding – it became a separate activity in zoo whereas in the Wild, it used to be 'like a delicious music that plays in the background of all activities throughout the day'. Ishmael was later on sold to a sort of menagerie and thereafter about four years later, a Jewish merchant named Walter Sokolow identified him as 'Ishmael', became his rescuer and provided him not only shelter but also a family – almost!

To Sokolow, Ishmael represented his lost family in Germany which he could never rescue from the Nazi Holocaust. Ishmael's formal studies of human evolution and how humans perceive their own developments were initiated by Sokolow, his benefactor. Ishmael continued these studies to an extent that his benefactor ended up being his research assistant! Eventually Ishmael found teaching as his 'unfulfilled vocation' and with the help of Rachel, daughter of Sokolow, managed to arrange talks with his students, the narrator being the fifth.

People, in general, can be deliberately educated to accept certain ideas and concepts, howsoever absurd these maybe. Such a set of ideas can be enacted and brought to reality as well by the same people once they start believing it. Ishmael cites example of the Holocaust by Nazis in Germany in the times of World War II. Hitler had made his people captives of a story – a story of liberation of the Aryan Race.

Drawing a parallel to this example, Ishmael proceeds with this statement: You are the captives of a civilizational system that more or less compels you to go on destroying the world in order to live. Here, Ishmael singles out all the civilized societies of mankind on Earth as being the captives of a story and calls them Takers. He also implies that the story being enacted by the Takers, which is reflected by the way we have been living, is destroying the world – the environment, the other life forms and precious resources. Whereas, there have been other peoples, the uncivilized, scattered savages, called Leavers by Ishmael, who live in harmony with their surroundings. And Leavers have also been enacting a story based on completely different premises. Now, Ishmael wants the narrator to narrate the story that Takers have been enacting here – the story that explains the scenario interrelating man, the world and the Gods.

The narrator recollects, in bits and pieces, the gross account of creation and evolution as perceived by us – the Takers. Starting from the – not so certain – theory of big-bang for the creation of the visible universe, he goes on to describe the development of complex life forms from relatively simpler ones during about four billion years after formation of the Earth. We see the evolution charts depicting the development of human beings as the crest of evolution. We see ourselves as the best species on Earth to have ever lived and thus believe that the whole process of evolution was eventually leading towards bringing out the best of all life forms. And since apparently it was all leading towards the arrival of man on Earth, obviously, now that he has arrived, everything belongs to him. He is in-charge of the affairs now.

However, man really took a long time to become aware of his destiny, observes the narrator. In fact, man took more than three million years to secure his food supply. While hunting and gathering for

such a long uneventful time in the human evolution, he could not do much about the basic needs of food and shelter. But with the advent of agriculture before about ten thousand years, every aspect of human living began to change. Having secured his food supply, man started forming larger groups with distribution of labour and much larger interdependences. Complex societal structures thus emerged with a variety of traditions, commerce, trades and arts. Now, man was developing science and technology which helped him not only in reacting to the threats to his survival but also in living more comfortably. Marvelling at his own feats, he goes on to conquer the deserts, the oceans, the moon, the space, the DNA and everything else that seemingly hinders his 'unlimited growth'.

But, the irony is that this conquest itself has devastated the world, says the narrator. While living the distinctively human way, while destroying the world around us, we pay the price of being human. It seems we are left with no other option but to ceaselessly march ahead in conquering the nature – to take control of everything. It seems that there is no other way of living, that there cannot be another way. This is the right way – and this is the only right way – of living a human life.

Ishmael being an unusual teacher helps the narrator in putting all the facts in place to shape a mosaic of his borrowed understanding. And now he calls this factual account of human history a myth! Not the facts and discoveries, which might be mostly unquestionable, but the way all these are put together to form the system of beliefs, says Ishmael, is responsible for the mythological nature of notions human beings have created about their own development.

He reveals that the story of creation, evolution and development as told by the narrator is enacting of the following three premises: (i) World is made for man; (ii) Man is here to rule the world; (iii) There is no such knowledge as how man ought to live.

While deriving the third premise, in the course of discussion, Ishmael comes up with one more observation. He claims that the prevalence of prophets in Taker culture is the manifestation of this third premise. Because, the Takers believe that there is no knowledge to look out for in this world about how man ought to live; only the gifted few – the prophets – can

show them the right way. The fact that this critical question did not ever gain the rational and scientific approach it deserved for the solution explains the importance of prophets and also supports the third premise. This axiom is so deeply rooted in the Taker culture that no substantial effort has ever been exerted in search of the solution.

Ishmael is a questioning teacher. He never gives direct answers. Instead, he inspires and guides his students in their search of truth. Thus the above three premises are not stated and then justified; rather these are arrived at as a logical consequence of their talks. And this indeed is a reader's delight to delve into the depths of arguments and see the same scenario with a changed perspective.

Before assigning the next and most difficult task to the narrator, Ishmael went on to elaborate a beautiful analogy.

The would-be astronauts of early days made many failed attempts in achieving a powered flight of airplanes. They were totally unaware of the law of aerodynamics, which explains how to fly an object against gravity by using air as support. They mostly refused to even acknowledge the possibility of such a law. Rather they were in a hurry to devise a craft which will fly somehow. And therefore, obviously their trial flights almost always met with a tragic end. What they ignored was the fact that whether or not their airplane confirms to the law of aerodynamics, it is anyway subject to the law of gravity invariably.

Ishmael now implies that the refusal to accept the possibility of knowledge of how man ought to live is like refusing the effect of gravity. He maintains that there must be a law (like the law of gravity) which has to be followed by each and every species on Earth in order to survive; a law which organizes life on Earth and promotes diversity and peaceful coexistence with interdependence; a law which defines and confines the behaviour of flocks of birds, animal herds and human civilizations – equally and unexceptionally. Whosoever breaks this law faces extinction in a very short time on a biological time-scale.

The Taker Thunderbolt, says Ishmael, howsoever marvelous and majestic in appearance, is just another trial attempt in making a civilizational flight. Within only about five hundred generations, a dot like tiny time span on the biological

timeframe, the Takers have grown limitless, devoured the natural resources and they are doing everything in exact contradiction to the supposed law. The fine craft of Taker civilization is not flying but falling freely rushing towards the ground. Very few like Thomas Robert Malthus⁴ could early see the end coming.

With this analogy, Ishmael makes it clear that the law he implies is not going to show how to make a civilizational flight successful. Rather he warns that any such attempt of making a civilizational flight is subject to a law and that noncompliance to such a law would be suicidal. The narrator is now challenged to formulate this law.

The Law which was yet to be arrived at had to be found by observing how different forms of life continue to exist in harmony with the life around them. The things that they never did – the same things that the Takers have started doing for the first time ever in the history of community of life – were the leads towards the Law. As the narrator was left on his own to deduce, he took almost four days to see the Law being followed.

His observations are:

1. The Takers exterminate their competitors – eliminate them in order to make room for themselves. It was as if they are at war with their enemies whereas, the other species always compete and have never been at war with one another.
2. The Takers systematically destroy their competitors' food. The rule in the Wild is to take as much you need and leave the rest alone.
3. The Takers deny their competitors' access to food. The rule followed was that you may deny your competitors' access to what you are eating but never should deny your competitors' access to food in general.

Summing up altogether, it is the Taker culture that started believing that the world belongs to them and only to them. The Law is contrary to this fundamental belief: No one species shall make the life of this world its own.

Now as the Takers would not obey the Law and that they believe somehow it does not apply to them, they have been increasing their food supply by resorting to any or all of the above three acts. And by doing so, following a biological consequence, Takers' population increases⁵.

This cumulative cycle has resulted into the exponential growth of Takers' population.

Further, Ishmael demonstrates with example that the effect of breaking this law by any species leads to extinction of many species, eventually also including the species which broke the law.

Now, Ishmael turns our attention to a widely accepted but hardly understood mythological story about Adam, Eve and their sons – Cain and Abel. It is an attempt to reason out the mythology with new interpretation and see its relevance from Leavers' point of view.

Ishmael and his student got engaged in a longest conversation and inferred the following points:

- Takers' civilization, starting from the Fertile Crescent⁶, was expanding all around before about six to ten thousand years.
- Within about four thousand years, they were confronting another civilization: Semites – the herders. Semites saw Takers acting like Gods – as if they had the knowledge of Gods (knowledge of good and evil who should live and who should die – knowledge of the rulers).
- The story of Cain murdering Abel must have been war propaganda of Semites in their long drawn battle against Takers.
- The story thus has Abel – representing Semites – as the God's favoured son whereas Cain – the agriculturist Taker – as the cursed son.
- The story of Adam and Eve is a sort of reconstruction whereby Semites sought to justify how Takers happened to be the way they are: acting like Gods after eating the forbidden fruit of knowledge.
- Had this story been originated among Takers, fruit of knowledge would not have been forbidden, and further, the agriculturist Cain in that case would not be the cursed son.
- All the same, if the Takers had authored these stories, then eating of the forbidden fruit would not be called 'fall', rather it would be called 'ascent'.
- Had this story been written by the Takers, agriculture would not have been portrayed as a curse. Semites believed that the Takers have been cursed to live a laborious life of producing food for themselves.

It can be seen that the author has made a full circle. He started by showing the way we see the world and ourselves. Then he went on to analyse the premises that explain our perception and lifestyle. He further shows us, through a beautiful analogy, where we are heading to with this way of living and that our search of 'How to live' has been confined to religious or philosophical realms only. And then he formulates the law of limited competition by observing community of life along with the implications of breaking this law. He returns to examine the roots of Takers' premises and establishes that the most widely accepted belief regarding Takers' origin has been a 'mistaken story'! Thus, he has put together all the elements of a story – a scenario interrelating man, the world and the Gods – and reconstructed a new mosaic of understanding from the same factual pieces!

Proceeding further, he winds up with the quick view at Leavers' premises and also shows the new role for the mankind – not only to survive but to lead by setting an example!

Leavers believe that they belong to world as any other species does. They respect and preserve the knowledge of what works well for them to live in harmony with their surroundings. More importantly, they have their own way of living but do not believe that it is the only right way. The author suggests that in order to survive forever, the Takers must spit out the fruit of knowledge by giving up the idea of controlling the world. Every species continues on its own path of evolution to become intelligent and self-aware. Man being the first, should make room for other species for their evolution. It does not mean that we should go back and live like hunter-gatherers or herders; rather, we should start inventing ways to live in harmony with the life and world around us.

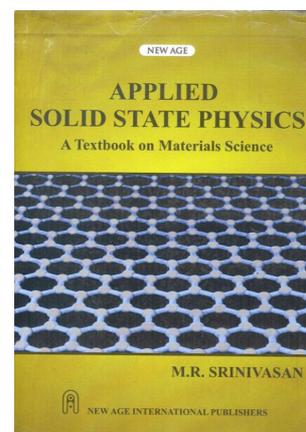
By the end, Ishmael apparently dies leaving a message: 'With gorilla gone, will there be hope for man?'

1. <http://readishmael.com> and <http://www.ishmael.org/welcome.cfm>
2. <http://dictionary.reference.com/browse/ishmael>
3. Alfred Kazin (b. 1915), US critic, 'Ishmael and Ahab,' *Contemporaries*, Little, Brown (1962); <http://www.multimedialibrary.com/articles/kazin/alfredmelville.asp>
4. <http://www.blupete.com/Literature/Biographies/Philosophy/Malthus.htm>

5. <http://www.britannica.com/EBchecked/topic/360609/Thomas-Robert-Malthus/222944/Malthusian-theory>
6. <http://www.public.iastate.edu/~cford/342-worldhistoryyearly.html>

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Applied Solid State Physics: A Textbook on Materials Science. M. R. Srinivasan. New Age International Publishing, 7/30A, Daryaganj, New Delhi 110 002. 2012. 816 pp. Price: Rs 399.

The area of materials science/solid state physics is so vast that no single book can even attempt to cover all the topics in this area. The present book is different in that crystal structure, mechanical and thermal properties are treated in far greater detail than books typically used in a first course on solid state physics. There is also a chapter on composites. A good feature of this book is the number of worked examples and problems at the end of each chapter. This is useful for both teachers and students and not common in many typical materials science or solid state physics books. Therefore this is a good book for a first course in materials science.

I briefly point out what, in my opinion, are the shortcomings of this book. It does not treat electronic structure of solids in any detail (like basic ideas of band theory) and constitutes a major omission, especially for a first course. Solid state