

286. Science comics in India as a pedagogical medium: A foresight

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Abstract. Contemporary science comics in India seem to be underdeveloped and rarely cater to the changing view of science-as-a-career by the Indian urbanites. The colonial tradition of newspaper cartoons in attacking science has not been carried forth and is tainted by the disconnect of an Indian Renaissance.

Towards cultivating a cartoonist's perspective to making science comics achieve a cult following, a persuasive call to investigate hidden science in folk comics and international syndicated cartoon strips is made.

While political actors find a niche backing or thrashing in comics, scientists rarely have a share in the ideology of the daily funnies and stereotypes abound unfairly and decry a no-say in their internationally marketed image.

Keywords: Contemporary science comics, Folk science in comics, Renaissance of Indian science

Introduction

Comics can help in promoting science literacy and encourage scientific dialogues. As a mass medium it supplements other modes of dissemination and engages the public in a unique way. As a pedagogical tool, comics can not only pass scientific facts, but also inculcate the mode of scientific thinking through a sustained rational narrative. Comics have been widely used internationally to discuss issues regarding scientific ethics and provide psychological support to ill patients by acting as counselors. Science comics have become a prominent genre crossing national boundaries. Translations of comics made in other countries are to be undertaken to be open to contrasting global views on scientific perspective and policy making.

Interest in comics as a two way dialogue can be enhanced through forums on the Internet, where children can speak out for their favorite characters. Comics can easily provide visibility to behind-the-scenes of publicly used scientific products like weather forecasts, dispelling myths and stereotypes that ail the scientific community. Comics can also lead to generation of strange ideas via its low profile and easily accessible take on scientific humor

In India, specifically, great science comics are rare and hard to come by. Indigenously created science comics like Sciencetoons and Young Scientists magazine are limited in their scope for exposition. A comics culture that appeals to the youth of India, that draws them to a reciprocating career in science is found wanting. Comics can promote the various careers on hold in science or can look at the history of the institutions of science that came about in India as different from those around the world.

In the traditional knowledge economy, beyond the usual research, development and individualized innovation model, communication is the recent catalyst introduced in the last decade that enables science to mix well in a solvent society. Beyond respecting our rich heritage, resources, wildlife and diversity and defending our country patriotically through serving the nation and promoting harmony that transcends religion, language, geography and gender, it is the fundamental duty of every Indian citizen to develop the scientific temper, humanism and the spirit of inquiry and reform (as said in Article 51(A) of the Indian Constitution). I thereby wish to herald comics as a melting pot where interdisciplinarity can be explored with a comic license, focusing on reducing the gap between the two cultures, converging science and humanity.

Science comics—What are they?

Science comics are usually an intersection of science fiction and sequential art. Sequential art differs from a movie or video in the way that static frames are spread out spatially. Similar to how movies have become ubiquitously 3-D, recent futuristic comics in the digital medium try to ensnare this effect via frames drawn with parallax kept in mind. New media constantly rediscovers and refines what is paradigmatic as a comic.

Science comics can be broadly defined as any comic that has scientific content (Fig 1 and 2.). A survey of recent science comics of repute has been underwritten by Tatalovic in [6,7]. Additionally of interest in the realm of science is the science of comics, especially where the world of 2-dimensional visuals with explicit gutter as planned by the graphiateur switches over to the 3D world of minutiae as portrayed through animation. The anticipation of motion is implicit in the framing of the scene using *la ligne contour* and *la ligne expression*. Our ability to understand and

synthesise this gestural dynamism is a profound area of investigation in visual sciences.

Additionally the biological affect of comics also plays in what makes a comic character endearing. Stephen Jay Gould, the evolutionary biologist, charted the neoteny in the evolution of the Mickey Mouse sketches as the most recent redrawings encapsulate the protruding forehead and retracting jaw of the infantile and inculpable. Hence science in comics can extrapolate very far.

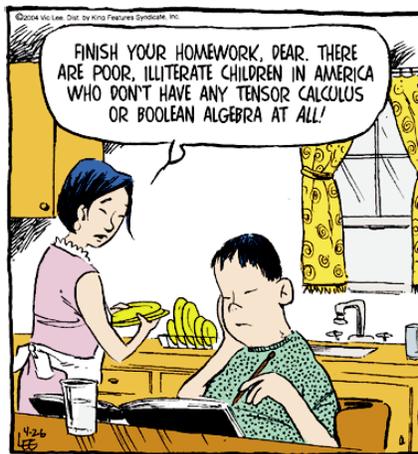


Figure 1. A plausible science comic from syndicated cartoon strip ‘Pardon my Planet’

3. Digging the historical archives for science cartoons

Historically, during the industrial revolution, comics and caricatures seemed to be of great importance in the debate on scientific facts and their interpretation in geology and evolution with the poster boy of this era being the derogatory, but scientifically true, caricature of Darwin as an ascent from primordial life. [2, 3, 5]. ‘Evolution: A journal of Nature was prominent for airing teachers’ troubles in curricularising evolution while weathering creationist pressures through cartoons (Fig 3a. and 3b.)

Comics as opposed to other cultural artefacts escaped from a sustained exhibitionary culture, and have been dominated by the motion picture industry in India. While the National Council of Science Museums has a very successful network of institutions and galleries that popularise science to the public, it seems there is no programme under the aegis of NCSM to specifically promote the visual culture of science in India and science comics in particular. In recent times the institutionalisation of this movement of preserving the comic culture has been spearheaded by Indian Institute of Cartoonists at Bangalore. Even in major mobile science exhibitons on wheels like the Science Express, there has been a grave neglect of this art form.



Figure 2. Captioned - "Dashed long way to come, but at least we can have a Test Match up here without it being ruined by their wretched Earth weather." – A cartoon by Joseph Lee from British Cartoon Archive.

Rarely, plausible scientific explanations of myths from the Indian epics like the Mahabharatha find a huge audience [5]. Even the superhero culture of heroes like Superman are constantly scrutinized for scientific standing. China in comparison to India has a very robust science fiction industry and the lack of Indian science fiction attributes towards a poor representation in scientific visual editorials.

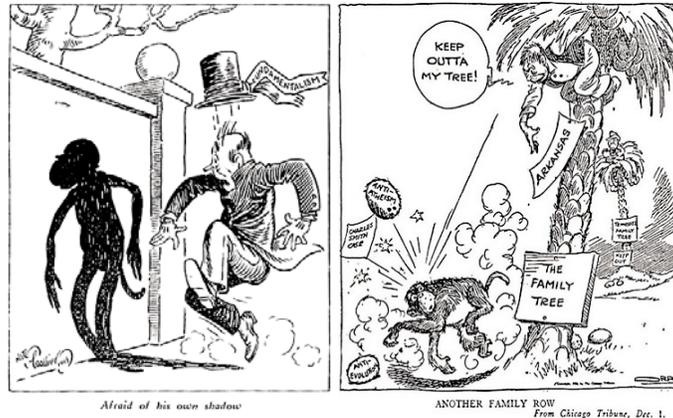


Figure 3a and 3b. Comics that fuelled the scientific and religious climate during the famous Scopes trial of 1925.

Investigating the Role of a Scientist Through Comics

Due to an increasing number of natural epidemics and catastrophes and a medialogical turn towards accountability of intellectualism the scientist is harboured with as much responsibility as a politician when the standard of life is threatened at national scales. The stereotypes portrayed in the media of the rarely represented scientist is often misleading and magnanimously uncritical. In an era of post academic science when innovation through rationality and design is a commodity, the corporate enterprise of science is defiant to mediation. Often the idea of a lay scientist seems to camouflage itself to the utopian Mertonian norms (CUDOS - 'communism', 'universality', 'disinterestedness', and 'organised scepticism'), whereas in spite of a marked movement to open source and open access, industrialised science follows the Zimanian norms (PLACE - 'proprietary', 'local', 'authority', 'commissioned', and 'expert')

The famous cartoon strip 'Dilbert' was famous for addressing the cynicism about organization and management and the mentality to flee from organizationally based careers [4]. As the constitution of a scientific aspiration changes the current day scientists need a comic scaffold to alert them about the nature of scientific endeavour. Famous international rivalries among scientists are staunch fodder for comic artists and it is the duty of cartoonists to deride the spectres of plagiarism and other co-morbidities that spell death to a scientific rationale.

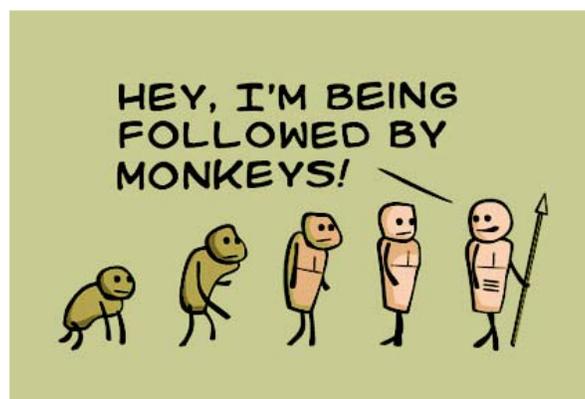


Figure 4. A simple comic representing evolution. Note the evolution of the faculty of speech and the ability for abstraction.

Visual Culture of Science in India

The talk about visual culture is often decommissioned by scientists who hold a shoot-at-sight complacency towards their postmodernist peers of other careers. However this visual culture needs to be first created and then

curated nevertheless.

Through comics one could wish to rhetoricise the approach of science towards the discourse of the curator. What do scientists preserve? Can they afford to neglect a 'law' of Nature as opposed to an artist's framing of reality in a medium? Without putting in a sampling of imperfect scientific apparatus and the apparatus of imperfect science as a doorstopper, I fear the halls of visual culture would be alienated from the invisible allegations of scientific materiality and imperialism. Would scientists professionally inspire archiving the frailties and frivolities of their discourse. How do scientists immunise the veneration of the random and the ugly. While the artists embowel themselves on the sceptre of perception and illusion, the scientist corrupts nervous gimmicks around the gaze of brain teasers. In the aggressive panopticism of frontier science, hoaxes and misconducts are relayed into a paradigmatic half life. However there are not luminary vigilantes who sniff out and confront a trafficking of artistic misconduct, and nor are wars waged to neutralise weapons of drunken mass deconstruction. What, as a curatorial embellishment would a scientist tattoo on the rational animalistic hide he/she has slipped into? Comics lies at the interface of the science / art two culture debate and it hence assumes an imperial role in negotiating crossfire.

In the fall of heroism following the post-modernist's relativizing of truth and hence dismissal of an anchor to standards that guide humanistic choices, comics can cater to opinions of lifestyle abandoning the typical superhero and questioning of authority [Fig 5, 6 and 7].

While I wish to portend an immediacy of science comics in India, let me not forget that there is a huge vacuum of allied visual cultures in other societal disciplines like law for instance. While several campaigns for grassroots comics are of essence that academics take to the jeu d'esprit of comic denotation and hence forward an indigenous Indian directive towards the melting pot of international comics. The temperament of the comic is as much of a brand that serves as a geographical indicator of the territorial fame and hence only stands to accrue economic remuneration.



Figure 5. An attempt at humor in optometry



Figure 6. An awareness comic on obesity from 'Pardon my Planet'



Figure 7. An example of scientific rhetoric via a comic.

Acknowledgements

I acknowledge several syndicate cartoonists and graphic artists who have provided a lot of free graphic content on the web. I reproduce their cartoons here under a creative commons license.

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