Chapter II

The New Sciences: Rational Recreations and Modern Wonderlands

The old and new world divide that defined the stark separation between the ‘modern’ cultures of the West and what was perceived to be the ‘ancient’ knowledge and traditional beliefs of the stagnated East, can be seen summed up in the earlier noted historic argument of Thomas Macaulay against the Orientalists:

It is, no exaggeration to say, that all the historical information which has been collected from all the books written in Sanskrit language is less valuable than what may be found in the most paltry abridgments used at preparatory schools in England . . . [Their] medical doctrines, which would disgrace an English farrier - Astronomy, which would move laughter in girls at an English boarding school, History, abounding with kings thirty feet high, and reigns thirty thousand years long, and Geography, made up of seas of treacle and seas of butter.¹
A wider and a less scathing view of the orient came to be represented in any East-West divide where the ‘ancient’ East was associated with spiritual philosophies and the ‘modern’ West with science and technology.\textsuperscript{2} The \textit{Bibidhartha Sangraha} [Miscellaneous Collections], a monthly family periodical that came into circulation from October 1851, embodied an early attempt on part of the Vernacular Literature Society to educate the native people in the ‘modern’ systems of knowledge. Each monthly number of the penny magazine contained “16pp. 4to, illustrated by plates on Science, History and Natural History” and articles on trades and manufactures, topography and antiquities, history, biography, customs and other characteristics of people of different countries, natural history, physiology, moral tales and miscellaneous extracts”.\textsuperscript{3} In keeping with the Society’s purpose, this miscellany conveyed to the bulk of the people

a knowledge of the rudiments of those sciences which effect the well-being of man in his every-day pursuits - of Natural Philosophy, Physiology, and of the Sanitary laws - an acquaintance with the industrial arts of Europe - and with the elements of commercial and economical principles. (Quoted in Long, lvi)

The extended subtitle ‘Natural-history History Natural Science- Industry- Literature related magazine’ printed at the top laid out its broad range and advertised it as an organ of the new modernity. Having sixteen
double columned pages, with three illustrations in each number, the magazine, affordably priced at 2 annas per issue soon reached a circulation of 1,200 copies.4

Following the rationalist content and entertaining model of Bibidhartha, the as-yet limited genre of juvenile print in Bengal was quick to tap the popular potential within its domain. By the 1870s, the niche publishing market was mature enough to demand, over and beyond school texts and moral instructors, a light and entertaining reading matter for children. In response to a ready readership to whom reading not only meant books for passing examinations and earning degrees but a worthy pastime or a constructive hobby, there came into being, in the last quarter of the nineteenth century, a series of juvenile periodicals.5 Through their miscellaneous segments, they created and steadily supplied (in absence of similar books for juvenile leisure, which came into being only as late as the 1890s) a popular and rational literature for their readers. These magazines contained an array of writings that included topics of science and scientific inventions, geography, reports about expeditions, tales of adventure, lives of pioneers, contemporary news, curious anecdotes and fiction. By marrying a rational and empirical instruction with entertaining recreation, this new periodical literature ushered in a leisure reading space for children. Unlike the textbooks and moralities, these magazines
though conducive to a broad development of knowledge were not directly related to the agenda of formal or religious education. Focused on rational disciplines, they opened up a new area of secular entertainment.

With varied forms of writings such as instructive articles, informal lessons, biographies, travelogues, real life stories and fiction, through the pages of Abodh-bandhu [The Innocents’ Friend, 1866] Jyotiringan [The Firefly, 1869], Balak-bandhu [The Child’s Friend, 1878], Sakha [The Friend, 1883], Balak [The Child, 1885], Sathi [The Companion, 1893], Mukul [The Bud, 1895] and many other periodicals Bengali children had a wider world unfolded before them. From Sakha in 1883 to Mukul in 1895, in little more than a decade’s time, Bengali children’s literature had moved beyond the limited confines of school-books and had begun to mould itself as a distinct literary genre. Partha Mitter notes that starting from the 1880s a “rapid expansion of journalism in Bengal drew lively minds to children’s magazines” and that these intellectuals “felt it necessary to supplement the Boy’s Own Paper and other imported literature with Bengali publications.” In the last quarter of the nineteenth century, a mushrooming culture of juvenile periodicals in Bengal jerked the genre out of the earlier utilitarian and pedagogic textbook boundaries and collectively forged a constructive and entertaining print area for children. Most importantly, in identifying a reader group with widening interests, the magazines located a niche sector in the book
market that would get sufficiently noticeable in a few years’ time and attract prospective publishers towards the field and result in a full blossoming of Bengali children’s books.

As noted earlier in the “Introduction”, in a wider context, this period was a rapidly changing time for Bengal which stood at the crossroads of a new era with a revival in literature, reformation in religion and the generation of a *swadeshi* (indigenous) brand of nationalism. While many of the contemporary literary forms began to display a socio-political unrest and opened up to critique the British rule either obliquely or directly, the juvenile periodicals were wary of treading such uncertain grounds. Rooted in an imperial tradition and largely managed by liberal Brahmo intellectuals, these magazines in general claimed to steer away from anything controversial or political in nature. In the course of the following pages I argue that it is through such ‘apolitical’ areas that the hegemonies of power, control and authorities emerge and are in turn confronted. It is through this conflict and struggle, that the concept of India as a nation, as a political entity takes shape. It is this ‘apolitical politicising’ of the juvenile reading domain in the late nineteenth and early twentieth century that the following chapters aim to study. Such a politicisation of Bengali children’s literature was initiated through the children’s magazines in the late
 nineteenth century and strengthened further through entertaining and leisure-time books for children in the early twentieth century.

Juvenile Bengali Periodicals: Inception and Influences

Children’s magazines in nineteenth century Bengal, like its other generic predecessors such as the school text books and books of advice, were one of the many literary types to be born out of a colonial cross-pollination. With a precedent culture in Britain starting in the early nineteenth century, the very idea of such a genre in Bengal for the use of indigenous children was conceived from an established popular culture of the English children’s periodicals overseas. Starting with early publications like Newbery’s *Lilliputian Magazine; or, the Young Gentleman & Lady’s Golden Library* (1751), John Marshalls’ *Juvenile Magazine; or, an Instructive and Entertaining Miscellany for Youth of Both Sexes* (1788) and the *Children’s Magazine; or, Monthly Repository of Instruction & Delight* (1798-99) in the eighteenth century, “throughout the nineteenth century, the market for children’s magazines continued to explode, driven in part by advances in printing, the decreasing price of paper and the already high literacy rate of the English population.” With religious juvenile periodicals vying with their highly popular secular counterparts,
by the middle of the century, the circulation of these “readily available and cheaply priced” magazines ran into thousands. Irrespective of their different ideologies, policies, brandings, prices and publishing offices these periodicals were homogenous enough to define an imperial worldview and unanimously upheld certain Euro-centric hierarchies and cultural hegemonies in areas both private and public. Commenting on the huge impact of juvenile periodicals such as the *Boy’s Own Paper* (henceforth *BOP*) on the minds of late Victorians and early Edwardians, Richard Noakes observes that “these serials promulgated ideas about empire, race, masculinity and war”.\(^9\) For example, in his editorial letter in the first issue of *Kingston’s Magazine for Boys* (1859), W.H.G. Kingston succinctly articulated his mission for the future empire builders of England, “My great aim is to give you a periodical . . . which you will value and look over years hence as an old familiar friend, when you may be battling with the realities of life under the suns of India, in the backwoods of Canada or the States, [or] on the grassy downs of Australia.”\(^10\)

A need to educate children beyond the public sphere or a formal school curriculum and an intention of blending instruction with amusement, are two borrowed thoughts that place the inception of the Bengali juvenile periodical in the tradition of colonial endowments. Discussing the benefits of blending instruction with recreation,
*Jyotirlingan* explained that though there might be medicines sweet and bitter for the same disease, it was the honey-coated one that the ailing patient always preferred. Such, it stated, was the difference between the education at schools and the one to be provided by the magazine. While at schools, the children learnt their lessons out of a fear of punishments, *Jyotirlingan* sought to entice them with illustrations and pleasant tales in easy language, “[w]e will never intimidate [the readers] or punish [them]. Greedy for sweets, our child readers will be drawn to taste our wares on their own.”

This finely balanced mixture of medicine and a spoonful of sugar had been formulated on the well chalked out and acid-tested patterns of the better known and the hugely popular English periodicals.

Just as the popular penny weekly *BOP* “had been launched from the offices of the *Leisure Hour*, itself a hugely successful family weekly issued by one of the leading British publishers of evangelical tracts and periodicals - the Religious Tract Society” (Noakes, 151), in Bengal too, the family periodical preceded the rise of a popular children’s periodical culture. Though published under different auspices, the family periodicals like *Bibidhartha Sangraha*, *Rahasya Sandarbha*, *Abodhbandhu* and *Jyotirlingan* were styled to fit the general reading audience, specially the relatively ‘private’ world of women and children at home. That these family magazines were, at least to some extent, read by children is revealed in some contemporary memoirs. Acharya Prafulla
Chandra Ray recollects being drawn to the tales of Indian kings in the *Bibidhartha Sangraha* as a mere boy.\(^\text{12}\) Writing about his childhood, Tagore speaks of reading a magazine edited by Rajendralal Mitra of which he found a bound annual volume in his elder brother’s personal library.\(^\text{13}\) With this he spent many lazy afternoons stretched out on his bed “reading about the narwhal or the curiosities of justice as administered by the Kazis of old or the romantic story of Krishnakumari”. He also tells of “another little periodical” in his young days called *Abodh-bandhu*. This is where he came across the poetry of Bihari Lal Chakraborty and a translation of *Paul et Virginie* (*Reminiscences*, 108-9). *Bibidhartha* – a periodical with miscellaneous contents packed under one cover and promising new and interesting subjects in each issue, categorically identified a general audience that included readers of all age-groups and from a wide section of the society:

*It is our aim to educate the common folk in easy steps, to intimate the trader and the shopkeeper, after their day’s work, of the varied happenings of the world, *to extend the knowledge of boys and girls through diverting stories, to strive to the effect that the youth, refraining from erotic literature will concentrate instead on beneficial reading matter*, that the old men become capable of wholesome conversation; to fulfill such a goal we have to take utmost care to make the periodical readable for all.* [italics inserted]
Along with an apologia for using a colloquial form of the language, the editor was quick to point out the justification of such a choice in a family periodical:

The pundits may well be displeased with our style of writing, but we are sure that keeping in mind the mission of this periodical, they will bear with us on the matter. . . . It is impossible for the common people to comprehend the heavily snaskritised official or written Bengali [sadhu bhasha] – therefore, the prevalent colloquial language, as spoken within genteel families, suits best the purpose of our magazine.\(^{14}\)

Similarly, *Abodh-bandhu* (the same “little periodical” mentioned by Tagore), commencing in 1867, defined its purpose and underlined a broad circle of ‘family’ readership:

Our sole concern is to light up the darkness of the ignorant mind with the bright rays of knowledge. When in harsh wintry days chilly winds make people shiver, then the sun’s benevolent rays warm the bodies of all things living; so will *Abodh-bandhu* cast its light in the darkest corners of the minds of boys and girls and of the women in the inner-apartments . . . and root out the impenetrable mesh of superstition and ignorance nesting therein.\(^{15}\) [italics inserted]
Thus, these early vernacular family periodicals had evidently counted the literate boys and girls (children, adolescents and youths) as a part of their extended and heterogeneous readership. Equally, from the other side - in the absence of an entertaining print culture tailored for juvenile audiences, they were read by young people who liked their new and interesting topics and could easily access their informal writing styles.

The Bengali juvenile periodical, that arose steadily to form a genre between the late seventies and the early nineties, carried on certain pre-tested formulae following the successful and popular models of the *Bibidhartha* and the *Abodh-bandhu*. Like the *Bibidhartha*, these magazines for children aimed at disseminating modern knowledge - especially those of the Western sciences through diverting articles and coupled such factual and scientific writings with entertaining stories and interesting anecdotes as measures towards popularity. Secondly, they adopted an easy conversational language, often punctuated with direct, colloquial references to the readers to break the monotony of reading, and lastly almost all the periodicals dressed up their volumes with good quality illustrations, to make them more attractive for their young readers.

The colonial moorings of the Bengali children’s magazine become apparent in their emulation of the established Lockean ideal ‘Delectando
monemus’ or blending ‘instruction with delight’. Education and entertainment – the classic adage of English children’s literature served to be the motto of the Bengali juvenile periodicals as well. These numerous publications from varied publishing offices, though varying the degree and the modes of ‘instruction’ and ‘entertainment’, sought to provide the benefits of this golden combination to their readers. In its very first editorial Jyotiringan expressed a different attitude and stressed on its mission of teaching through diversion:

Some attempts have been made towards blending morality with amusement for children, but it is not an easy task to successfully combine the two. Many ways have been devised to this end, the periodical publication being one of the commonest means chosen. With this periodical also, we have set out to simultaneously amuse and educate our women and children. In England, France and other countries there are many beautiful, illustrated periodicals for the moral enrichment of children; these magazines are full of didactic tales that are narrated in easy language, but nothing quite like that can be found in Bharatbarsha. Here, the parents, on sending their wards to school, rest contented thinking that their duties are done and do not try in the least to educate their children in moral values . . . Even the Government adopts an indifferent stance on this matter . . . this periodical aims to partially fill up that void.

This magazine has been named ‘Jyotiringan’ [The Firefly]. Gentle-hearted reader, imagine yourself lost in a vast expanse in the inky darkness of the night, you do not know where to go – at
this hour a tiny firefly comes to you and by its soft glowing light, shows you the way to a peopled hamlet – think then how you will thank the little insect with a grateful heart! So is this Firefly here to light up the darkness of our readers’ minds and to guide them gently towards the rightful path of virtue. (Jyotiringan, July 1870, 2-3)

In the history of Bengali children’s literature, Sakha is seen as the earliest full-fledged secular juvenile periodical and the first children’s magazine to make a mark in a major way. Recollecting a conversation with a few of his Sunday school [Rabibashariya Nitibidyalay] students, Pramadacharan Sen, the founder-editor of Sakha, states how he had first come upon the idea of starting a children’s periodical:

During the course of our visit today we decided to start a new venture. The discussion was about creating a good influence for the generality of young boys. A boy suggested writing interesting pamphlets. But I felt that periodicals like the Children’s Friend etc. had a wider reach. This will require an expenditure of about 60 rupees a month. If we can generate the amount and create a fund then a paper can be started. (Italics denote the author’s words in English)

While introducing the periodical in his first editorial, Pramadacharan Sen laments that in this unfortunate country, not many have tried to bring about an improvement in the characters or in the education of children. That, he states, was precisely the reason for launching Sakha. The periodical proposes to advise its readers like a parent and to educate them like a teacher. “Our aim is to educate little boys and girls so that they grow up to be respectable persons in future . . . The magazine’s motto is to live up to its title, to be a true ‘companion’.”

With the epigraph “The Child is Father of the Man” printed on the cover, Sakha was refreshingly different from its more didactic predecessors and signaled a change in a new direction not only in juvenile publishing but also in the very concept of childhood [figure 2.1]. It was the first juvenile periodical to bring a miscellany of materials under one volume, covering a wide spectrum ranging from serialised stories and lighthearted poems to travelogues and factual essays on science, nature, health and sport. All of these were made more agreeable for the readers by accompanying illustrations. It was also the first venture in Bengali children’s literature and publishing, to gather under its banner a group of talented and promising authors like Shibnath Shastri, Upendrakishore Raychaudhuri, Bhubanmohan Ray, Dwijendralal Basu, Nabakrishna Bhattacharya and many others. Many of these writers would later become part of the canon of Bengali children’s literature through their outstanding literary contributions. The January 1885 issue of Sakha carried a supplement
which quoted messages of felicitations sent by eminent personalities from contemporary literary and educational spheres like Bankimchandra Chattopadhyay, Chandranath Basu and Rajkrishna Mukhopadhyay. Chandranath Basu’s comment, in particular, stressed on the periodical’s novel appeal and pointed out its essential difference from the earlier juvenile magazines:

The purity of its tone deserves unmeasured commendation, whilst the interesting variety of its contents, its genial, earnest and at the same time playful spirit and the neatness of its pictorial illustrations are features which render it exceedingly attractive reading for Bengali boys and girls. Its style, diction, matter and manner all seem admirably adapted to the capacities of those for whom it is intended. (Sakha, Jan 1885)

Almost all the children’s magazines following the publication of Sakha (like Sathi, Sakha o Sathi, Mukul and Anjali) were concerned with the same issues and expressed similar aims. In an ‘advertisement’ announcing the launch of Sathi in March 1893, the magazine’s assistant editor Sathishchandra Sen wrote,
Figure 2.1. Cover page, *Sakha*, January 1883.
Sathi desires to provide versatile education for boys and girls. The magazine will publish biographies of illustrious men, stories and poems, easy articles on science, historical narratives, writings on sport and other knowledgeable subjects. We are earnestly trying to supplement each issue with at least four or five illustrations and sometimes even more . . . [and] in keeping with the general standards of our country Sathi has been affordably priced. There are plenty of cheap illustrated serials for boys and girls in foreign countries, but unfortunately, there is a huge dearth of such juvenile periodicals for our children. We are trying our best to fill up that deficiency.  

Editor Shibnath Shastri reiterated the same note when introducing Mukul (June-July 1895) to its child-readers:

“Mukul” seems such a fitting name [for the periodical]. The word reminds us of so many things. First, it brings us hope. Today’s buds will be tomorrow’s blossoms. Buds mean that flowers and fruits are on their way. That is why a bud fills us with joy . . . It is not only mangos and berries that have buds, there has to be a budding stage in all creatures . . . This periodical too, is meant for buds - for human-buds.

It is our intention to help them bloom. Into the hands of our young readers we shall put the bud of knowledge which will, with time, blossom forth in fruits and flowers to fill up their lives.  

It seems that the most likely model followed by the publishers and editors of the Bengali children’s magazines for blending virtue with
leisure, and education with entertainment, had been the BOP and its successors in the moral brigade. The Religious Tract Society (1799) with its successful history of publishing secular material with a Christian tone in popular periodicals for children, provided an exemplary foreign model for the inception of a similar culture in the Bengali vernacular. A precedence of a strong didactic and moral influence was already marked out in the bulk of the early printed works in Bengal that were published by the various missionary agencies in and around Calcutta. Sakha and Mukul, two of the most successful and sustaining Bengali juvenile magazines in the nineteenth century, were both related to and in a way, products of Sunday Moral schools – the Rabibashariya Nitibidyalay and Nitibidyalay respectively and were enthusiastically supported by their young members. Secondly, biographical evidence points to the fact that some of the more popular and ‘respectable’ of the English juvenile periodicals were being subscribed by select households and also possibly by some circulating libraries in Calcutta – to the effect that the titles like The Children’s Friend, Boy’s Own Paper and Chums were well-known among the early editors and writers of the Bengali juvenile magazines. As a way of advertisement, an issue in the eighth volume of Mukul enlisted the endorsements of several other distinguished journals. In it, The Indian Mirror spoke of Mukul as “an exceedingly nice little paper, full of interesting and instructive subjects” in which “several Bengali writers of eminence” contributed and further observed that “it is on the line of
Boy’s Own Annual and is pre-eminently fitted to be juvenile instructor”. Congratulating Mukul on its high standards of publishing and beautiful prints, Sanjeevani stated that “at first sight the paper appears to be an edition of some illustrated English magazine” (Mukul, August-September, 1902, n.pag.). Such comparisons, evidently meant to be encouraging, are also convincing proofs that the Bengali juvenile periodicals closely followed the models and patterns established by the well-known English children’s magazines of the day.  

This juvenile genre was also undoubtedly a product of the great Bengal renaissance – in itself an upshot of the reformed colonial culture. The editors and a very large section of the numerous contributors of the juvenile periodicals were themselves beneficiaries of the new education instituted by the British administration early in the nineteenth century and were trained in the modern, Western schools of thought. More specifically, it was a handful of creative and enthusiastic Brahmos like Pramadacharan Sen, the Tagores of Jorashanko, Shibnath Shastri, Upandrakishore Raychaudhuri and their friends and families from the same reformist fold, who shaped a new juvenile print culture through Bengali periodicals in the late nineteenth century. Besides publishers and editors, a large majority of the contributors of the most popular children’s magazines like Sakha, Balak, Sathi, Sakha o Sathi, Mukul and Sandesh were also Brahmos. Brahmoism, the first Hindu reform
movement of modern times and an indigenous revival brought about by a Western contact, “built its implicit codes of child-training on a rule-of-thumb synthesis of Victorian Puritanism and indigenous high-caste asceticism.” Further the Brahmos, who took “education to be a moral force and an instrument of change”, were keen to counteract missionary influence by introducing “wholesome reading” of their own (Mitter,126). Indeed, the modernist, anti-idolatrous, upper-middle class Brahmo sect was almost single-handedly responsible for the establishment of a popular vernacular periodical culture for Bengali children. Apart from the major Brahmo impetus, there were two lesser - but not unimportant - agencies behind theses magazines. The first of these were the afore mentioned Christian missionaries who having initiated the genre early in the nineteenth century with such periodicals as Digdurshun and Pashwabali, pursued and propagated moral education through later magazines like Jyotiringan, Anjali [Offerings], Balyasakha [The Childhood Friend], Srihatta Surhid [The Srihatta Companion], Shishu [The Child] and so on. Also involved in the children’s magazines, mostly in the capacity of writers, were individuals hailing from a liberal Hindu background, who through the virtue of their unorthodox upbringings, had a western education and a modern outlook. The inception of children’s magazines in nineteenth century Bengal can thus be traced to a cross-cultural influence effected by colonialism and the genre itself
becomes a part of the fast changing history of Bengali thought and culture.

As a genre growing out of a precedent culture of Victorian English juvenile periodicals and following the same imperial model to a literature having a nationalist agenda, the Bengali juvenile periodical presents an especially intriguing area of study. It is hardly surprising that these magazines, coming up as a product of a new and reformed colonial culture, expressly designed for child readers and aiming to encapsulate an all-round education and a healthy entertainment within their pages, would be wary of bringing in un-child-like elements and dissenting political views. Thus the maiden editorial of *Jyotirlingan* claimed to steer clear of anything controversial or overtly political in nature, and to entertain its young readers with only wholesome things: “We will not burden their [the children’s] minds with matters of politics or war. Our intention is to entertain them with various fictional and historical narratives and to bring them a knowledge of the different branches of science” (July 1870, 2). The front cover of *Chhatraranjana* [Entertainment for Students,1916], a sixteen page fortnightly edited by Sarojkumar Ray, made a similar declaration: “This periodical publishes poems, narrative fiction, biographical sketches, short stories, puzzles, anecdotes, scientific articles and essays authored by students. It does not publish any political discussion or writings of a mutinous nature.”26
However, it is through such apolitical areas that the concept of India as a political entity gradually emerges for the child readers. In his article “A Juvenile Periphery” Satadru Sen notes:

The Bengali children’s magazine of the twentieth century emerged within an older context of middle class attempts to articulate a politically charged world of children’s knowledge. Beginning in the 1870s, the Bengali press had articulated a desire to construct its experimental terrain of childhood, i.e., a juvenile periphery of its own that might resist, overlap, complement or render redundant the histories and geographies of Bengal that were produced by British writers.27

In the beginning, this ‘nationalism’ was in no way a radical or even an anti-colonial notion, but a germination of the idea of a desh or a nation. That in turn generated and cultivated a sense of a pride in swadesh and a sense of belonging to one’s native land. Such feelings gradually and cumulatively consolidated into a cultural resistance and a political identity and lay the rudiments of a more aggressive and militant nationalism that was to gather force in the 1920s and 30s.

The historians and critics of Bengali children’s literature like Khagendranath Mitra and Atwar Rahman have unanimously agreed on the first and what they take to be the only point of intersection of the
political and the juvenile domains in the nineteenth century. The article “Surendrababur Karabas” [The Imprisonment of Surendrababu] written by Bipinchandra Pal† had appeared in the 6th issue of *Sakha* in 1883.

Trying to mobilise a passionate patriotism in the tender minds of his young readers, the author concluded his essay with magnificent rhetoric:

> Readers! Boys and girls! Learn to cry for your unfortunate motherland! One day, you too will make sacred the prisons of Bharat, your labours will help alleviate the sorrows of your nation. A day will come when your people will take pride in you. 

(*Sakha*, June 1883, 91)

This article has usually been seen and quoted as a solitary instance in the entire corpus of contemporary juvenile periodicals, to have permitted an explicit political agenda and voiced an aggressive nationalism.28 Satadru Sen while stressing on “a chronic tension between what William Blake called Innocence and Experience, i.e., an attempt to narrate childhood as an apolitical refuge within colonial politics and the simultaneous production of a childhood that is openly informed by events such as the Russo-Japanese war, the Delhi *durbar*, the golden jubilee of the Congress and the passage of the *Government of India Act of 1935*,” identifies *Rangmashal* – a much later periodical to be “aggressively nationalist” compared to the earlier “more cosmopolitan”

† There is difference in opinion among literary historians as to whether the author was the same as the famous nationalist Bipinchandra Pal.
ones like *Sandesh* and *Mouchak* (Sen, n.pag.). I argue that instead of a definitive moment of ‘inception’ in “Surendrababur Karabas” or a sudden manifestation of an aggressive nationalism in juvenile literature in the 1920s, the fiery cult of Swadeshi-ism was preceded by and founded in a less charged but steadily building ideology of nationhood that began to be expressed in the varied genres of the children’s magazines in the 1880s and 90s. The present and the following chapters study the rise of a nationalism and trace the sustained construction of an idea of nationhood through the ‘apolitical’ literature of the Bengali juvenile periodicals through the late-nineteenth and early twentieth century period.

**A Knowledge of the Sciences and a Rational Temper**

With the aim of enlivening morality with levity, the periodicals planned their issues to cover a gamut of subjects. Having a serialised pattern and a segmented structure, these magazines ushered in new areas into the vernacular children’s domain and opened up worlds hitherto untouched in the genre. A broad overview of the constituents of these periodical includes (like their English counterparts) slots for fiction, science and inventions, biographies and histories, geographies of places far and near, pedagogical and religious materials, a miscellaneous
section of anecdotal news and brief informative pieces, sports, games and pastimes and various lighthearted ‘fun’ pages dotted with riddles, picture-stories and brain teasers. Some of the magazines would also incorporate ‘special’ pages for girls, literary contributions by readers and articles teaching social norms and etiquettes. Of these the most extensive area of Western influence and the most visible one within any volume was undoubtedly the scientific contents of the juvenile periodicals.

Science - the presiding god of the new world - reigned supreme in the Bengali juvenile periodicals, especially so in the last quarter of the nineteenth century. The introduction to Science in the Nineteenth Century Periodical: Reading the Magazine of Nature points out that “Science, technology and medicine permeated the contents of general periodicals in nineteenth century Britain, appearing not only in avowedly scientific articles but also in other forms of narrative including fictional representations, glancing asides in political reports and caricatures and allusions in comic magazines”\textsuperscript{29} The observation holds equally true for the Bengali juvenile periodicals like \textit{Sakha}, \textit{Sathi}, \textit{Sakha o Sathi}, \textit{Mukul} and \textit{Sandesh}. Not only did they have proper sections dedicated to lessons of science, but scientific explanations, information and views were pervasive in almost all the other contents of these periodicals like factual and descriptive articles, travel and adventure stories, biographies, anecdotes, miscellaneous news, in the sections on hobbies and pastimes,
in riddles and brain-teasers and even in the advertisements. Much more than the likes of “Akshay Dutta’s book on Popular Physics”, it was the late nineteenth century juvenile periodicals that have the credit of popularising science among Bengali children through their recreational-reading culture. “We read our physical science without any reference to physical objects, and our knowledge of the subjects was correspondingly bookish. In fact, the time spent on it was thoroughly wasted” reminisced Tagore recalling his childhood education at school.\(^\text{30}\) Taking every care to avoid the monotony of dry information and cutting down on the break-jaw Latin of the jargon-heavy text books, the juvenile periodicals presented their scientific articles in easy, accessible language and often within fictional frameworks. Further, these magazines embellished the science topics with plentiful illustrations, varying from simple woodcuts and lithographic prints to later photographic reproductions and coloured half tones. This ample pictorial material greatly enhanced the aesthetic appeal of these volumes and made the periodicals visually attractive for their juvenile audiences. Indeed these magazines were largely responsible for creating a rational ambience and for inculcating a scientific inclination more effectively and widely than the bookish knowledge of classrooms.

In his article analysing the types of sciences represented through varied genres in late-Victorian children’s magazines like the \textit{BOP},
Richard Noakes notes that the message that was being communicated through the miscellaneous scientific materials “was not just scientific knowledge but Christian and Anglo-Saxon notions of morality and racial superiority” (Noakes, 154). As a genre initiated in the West and inducted into the vernacular culture through the windows of a new colonial culture and constituted of heavily borrowed materials from a parallel English press, the popular science segments inevitably conceded the superiority of the modern and advanced Western world in respect to the unchanging and stagnant East. The West was universally acknowledged as the prime seat of modern science, as the “favoured temple of the Muse of Science”.31 “Unabingsha Shatabdi” [The Nineteenth Century] a treatise by Ramendrasundar Tribedi in the April-May 1899 issue of Mukul, spoke about the end of an epoch that had revolutionised the history of mankind through an unparalleled advancement of knowledge.32 The article celebrated the nineteenth century as an era of historic transformations that were achieved through scientific discoveries. This changeover into a new order of things was an essentially Western phenomenon:

Science has several branches. All things in this world can yield scientific knowledge and everything is studied under the auspices of Science. It tells us about heavenly bodies and calculates the distance between them . . . [as it does] about the past stages of the earth’s history and its present form. The appearances and habits of
prehistoric creatures and their relationship to modern ones are being deduced from scientific studies. Man has come to understand the laws of heat, light and electricity, and furthermore, he is now able to harness these powers to serve his own needs . . . Man’s knowledge has increased [over these years] and so has his power. Knowledge gives birth to power. Try to gain knowledge and you will become powerful on your own. (11)

The several disciplines that he marked out as harbingers of the modern age and as tools of power were Astronomy, Natural History, Natural Science, Physical Science and Technology. All of these were the ‘new’ foreign disciplines, originating in and cultivated by the Western European nations and recently introduced to the indigenous population through colonial contact.

The natural sciences like Botany, Zoology, Entomology and Natural History occupied a high percentage among the regular science segments in the Bengali children’s periodicals. Besides, there were conversational explanations of the basic laws of Physics, articles carrying out homely experiments in Chemistry and essays describing Geographies across the world. Also not uncommon were writings of anthropological and ethnological interest and discussions about the wonders of Astronomy. Occasionally children were provided with useful remedies in common
health ailments, taught the benefits of modern medicines and advised in areas like hygiene and sanitation.

Continuing an old trend from *Pashwabali* [Animal Biography, 1822] and *Pakshir Bibaran* [Ornithology, nd] from the early phase, the mid-Victorian periodicals too manifested a concern to unravel before their readers the mysteries underlying the life cycles of plants and animals. They are led to understand the miracle of the caterpillar turning into a winged butterfly and told to appreciate the fine art of a spider’s web; they are shown diagrams of the lifecycles of mosquitoes that infest Calcutta with Malaria as also those of the exotic far away creatures like the ant-eaters or the ostrich [figures 2.2, 2.3, 2.4, 2.5]. Following the pattern set out by the ‘evangelical’ view of science (as expounded by authors like Barbauld, Wakefield and Trimmer), these early writings in natural sciences were often rooted in theology, where science and its new truths became a part of the overarching grand design of Godly Creation. For instance, the article “Bayu” or Air in *Abodh-bandhu* enlightened the readers about the properties of the “invisible air that surrounds us”. Revealing the subtle balance in the composition of air that determines its life-giving properties, the piece of writing inspires a sense of awe at the marvel of Creation:
Figure 2.2. Illustration of the house-fly, *Sakha*, February 1883.

Figure 2.3. Illustration showing the stages in the life-cycle of a butterfly, *Mukul*, June-July 1896.

Figure 2.4. Illustration of the butterfly, *Mukul*, June-July 1896.

Figure 2.5. Illustration of birds, *Mukul*, May-June 1896.
Air is made of four parts of Nitrogen and one part of Oxygen. Learned men tell us that if this proportion would even be slightly disturbed, the entire living world would cease to exist. So the Omniscient God has maintained the same balance in air everywhere. Scientists have tested the air from the coldest ice-capped mountain tops and the dry air from arid deserts but its constitution is seen to be the same everywhere. The Almighty has made the entire of His world habitable for His creatures. His benevolence shines on all places. (*Abodh-bandhu*, 1867, 5)

In a similar vein were the two stories from Mrs. Gatty’s *Parables from Nature* that Upendrakishore had translated for *Sakha*. Full of factual details, these tales minutely studied nature and conveyed the empirical observations and scientific truths, but reinforced, at the same time, the divine design.

Outdoor leisure activities like walks by the river, a tour of the countryside or gardening yielded ideal opportunities for starting an instructive conversation between children and their mentor (often a teacher or a guardian). Being surrounded by natural objects which were the topics of their discourse, these outdoor lessons proceeded through the questions that the children asked their mentor out of their innate curiosity. “Gachhpalar Katha” [On Plants and Trees] used a narrative technique to simulate such an experience of an outdoor excursion. In this imaginary tour, where the writer and the reader move together, the
varied types of plants, shrubs and trees that they ‘come across’ become
the subjects of an interesting conversation:

I have loved nature since I was a child. Do you not like it too?
Enter any garden and you will see nature’s beauties strewn
around. Look at those tall Palmyra trees raising their heads like
sentinels, on that side the big trees are bending low, laden with
fruits, and there a host of creepers are twining up the trunk of the
tall *Suparis* . . . Notice their diverse varieties- some are tall and
straight while others branch out in every direction, the creepers
climb skywards but some rise only a little above the ground, some
trees have big, feather-like leaves in clusters while others are
thorny . . . You will be amazed to find that there are so many
things to learn about them . . . How does a big tree come out of a
tiny seed, what do plants eat and from where do they hunt out
food, do they sleep at night? – we would have to find out all these
and more.

(*Mukul*, April-May 1901,10)

With such gentle exhortations like “come let us find out” or “let us see
what happens if” the author asks the readers to scatter a few seeds in
moist soil and then to study how young saplings would spring from
them. Manmatha Mukhopadhyay’s “Thakurdadar Galpa” [Grandpa’s
Stories] also used fictional conversations to frame science lessons. The
series, with its deceptively enticing title, contained conversations on
scientific matters between a group of children and their grandfather,
usually on occasions of leisure, when they accompanied him for walks or
when sitting around him idly. “One evening Nabinbabu took his little grandchildren to the riverside. The fast flowing waters of the Ganges came rippling up to the shore and receded again into the river.” As they sat enjoying a beautiful sunset sitting by the river, the grandfather put a simple question to the children: “Can you tell me about the source of the water in the river?” The lesson advances with further queries from the children as they try to figure out an answer. “Kishori asks, ‘the water in the river is forever flowing, it is never still for a moment, why then is it not ever getting drained?’ . . . Nalin answers, ‘Pishima [aunt] says that the holy Ganges is a Goddess – so how can her sacred water ever dry up?’” Such unscientific popular notions are firmly negated before Nabinbabu tells the children about the geographical origins of the Ganges in the remote Himalayan glaciers and explains to them the long course traversed by the river until it meets the sea (Sakha, June 1883,91).

Similarly, a conversation between two brothers that had started as a matter of curiosity on the constituents of sugar turns out to be a practical lesson in Chemistry. To resolve their arguments, the brothers try out an experiment by heating a handful of sugar crystals in a covered brass bowl. Their surprise knows no bounds when they discover that the white-coloured sugar has disappeared leaving soot-black coal in its place.38
Apart from such writings in the regular science segments, a wider environment of science and modern scientific attitudes permeated larger parts of most children’s journals. There were plenty of informative pieces on health and medicine and sound advice in matters of everyday hygiene. Most of these writings like “Malaria o Masha” [Malaria and Mosquitoes], “Phitkiri Dwara Jalashudhhi” [Purifying Water with Alum], “Sutikagriha o Gutikotak Upadesh” [Advices on Confinement Related to Childbirth] or “Shishu Sasthya Raksha” [Good Health for Children] tried to induce modern remedies and rules of sanitation in place of the old customs and practices and significantly stressed on the rational knowledge of the modern sciences. Snake bites being common in rural and suburban Bengal, ‘Sharper Oushadh’ [Medication for Snake Bites] printed some remedies, mostly used by quacks, with a skeptic reservation at the beginning saying: “Below are some recipes of medicines that are used to treat snake bites. We however, do not believe in all of them.”39 The fourth and the last recipe seem interesting, especially in its presentation:

The snake-quacks tell of a medicine - on the last day of Chaitra, find a Bael tree which has not yet flowered and then in one breath, pull out a northward pointing root of that tree – that will be a strong antidote for snake-bites. We are not aware of the virtues of the Sankranti,† or those of the North or the South or that of the

† The last day of the month Chaitra, the twelfth month in the Bengali calendar, is a Sankranti, traditionally believed to be a holy and auspicious day.
work being accomplished in one breath. But we do know that the roots of the Bael tree scare away snakes. So there is a possibility that it might have the medicinal properties required of an antidote. (Sakha July 1883, 105)

Also, not the least uncommon were articles offering scientific explanations to ‘miracles’ and ‘magical feats’ or writings trying to do away with superstitions. “Bhojbaji o Bhelkibaji” [Magic and Sorcery] intimated the reader of the ‘trick’ used by street performers to enact a ‘show’ of levitation while a page in Sathi illustrated, with the help of suitable diagrams of the human anatomy, the actuality underlying the seemingly amazing act of swallowing a sharp-edged sword [figure 2.6].

The diagrams illustrated how, when the feat is carried out by trained and skilful magicians, the sword which was fine and pliable, did not touch the inner linings of the food pipe and therefore caused no harm. In yet another example of an informal teacher-student conversation, folklore gives way to scientific facts. The child, going by her grandmother’s tales, had the idea that the gigantic cloud-coloured elephants “who lived up in the skies”, spouted water from their trunks and caused rainfall. But this ‘fiction’ is sifted from the actual phenomenon as the science of the water cycle is explained in this article on the rain in Sakha.
Figure 2.6. Illustration showing the trick of levitation, Mukul, April-May 1896.
Much more than printed words and formulae learnt from books, science was indeed meant to be cultivated as an attitude and an outlook. Acquiring a scientific temperament underlies the choice of the hobbies and pastimes advocated for the readers. “Sureshder Bagan” [The Garden at Suresh’s Home] becomes an elaborate lesson in zoology as the reader learns of the myriad creatures nesting in the nooks and crannies of a homely garden. The grassy plot that is tended so lovingly by Suresh and his siblings is quite “like a book of lessons to them”.42 If anyone came upon anything new, there would be an excitement amongst the children and every one of them would crowd around the newly-found sapling or creature in order to study it” (Mukul, July-Aug 1899, 53).

At times, dry facts of science were made more palatable with a liberal dose of humour. “Ki Shundor Mukh” [Beautiful Faces] showed the readers pictures of a few fierce-looking under-water ‘beauties’. A following article in the next issue articulated a spirited defense from the in-land creatures who challenged that they were no less handsome than the water-dwellers.43 “Bigyan Koutuk” a regular section in Sathi, aimed to make cerebral pursuits more diverting by cloaking it in the fun of leisure activities. Thus, an article on the methods of cooking rice in a paper packet blended the fun of an outdoor picnic with that of a practical science lesson.44 Bhojbaaji [Bewitchment] by Amritalal Basu, was a unique juvenile periodical devoted solely to the purpose of having fun with
Chemistry, especially with conjuring tricks and illusions.\textsuperscript{45} Seeking to create an interest in the science through amusing experiments with chemicals producing spectacular reactions, the periodical seems to be similar in spirit to John Scoffern’s series on indoor chemistry amusements in the \textit{BOP}. Scoffern, who preferred practical demonstrations and entertainment to “chalking symbols on blackboard” wrote at the beginning of his series:

[B]oy students of chemistry like nothing so well as coloured fires, bangs, abominable smells, and any chemical teacher who aims at satisfying his young folk must oblige them in this matter. Very good! I bend to the pressure of opinion; but in doing so, I shall not be content except my coloured fires, bangs and evil odours bring forth some product of instruction. (Quoted in Noakes, 162)

“Strewing flowers over the thorny path of Science” juvenile periodicals like \textit{Sakha}, \textit{Sathi}, \textit{Sakha o Sathi}, \textit{Mukul} and \textit{Sandesh} published a plethora of child-friendly writings on science that were starkly different from the science text books prevalent for children. Like the science serials in the \textit{BOP}, these writings too avoided terminologies that would remind the reader of the class-book and schoolroom, and “developed other textual strategies for showing that learning about and practicing science would improve their knowledge, character and leisure time” (Noakes, 160). This corpus of science journalism in the vernacular juvenile periodicals not only ushered in a new way of teaching but was
an active agent in popularising science among children by inducing an interest in the subjects outside classrooms, often *through diversions and during leisure*, where the mentor and the pupil were both participating in the *fun* of learning.

Though the Euro-centric hegemony probably appears to be the strongest in the areas of the Sciences, the appropriation of this foreign field gradually becomes more noticeable with the approaching century. While the science sections in the early periodicals like *Bibidhartha* and *Jyotiringan* were always sourced from Western, mostly English periodicals and other Western textual references, the later periodicals like *Mukul* and *Sandesh* increasingly relied on original writings by indigenous authors. These writers, who were often men of science themselves, were not simply translating or paraphrasing materials from English originals (as was done for many articles in *Bibidhartha*) but were writing articles based on their own understanding and in a few cases, on the basis of their own research and authority.\(^{46}\) *Bibidhartha Sangraha*, with a high percentage of science-related material, based its articles on contemporary and preceding European texts like *Annals and Magazines of Natural History* or F. Cuvier’s massive publication *The Animal Kingdom* (1827). It also referred to experiences and accounts of European men such as Lieutenant Colonel Sleeman’s travelogues, or the Dutch surgeon Mr. Foeresch’s factual documentation of a poisonous tree - the ‘Bohun
Upas’ from the *Monthly Magazine and British Register*. The articles also often furnished authenticating details by employing names of foreign explorers and naturalists like Hamilton Smith and Christian Gottfried Ehrenberg. The miscellaneous overviews of interesting and curious scientific research on fields as diverse as training dogs, nesting fishes, social behavior of ants and weather science in *Blalak* were loosely based on articles sourced from foreign magazines and refer to names like “Tylor-saheb” and “Sir John Lubbock”.

By the turn of the century, as the articles began to be designated to specific writers, there was a noticeable shift from the foreign to an indigenous authority in science. The contributors were often scientists and professionals of high status. Reputed writers, technical professionals and practitioners of science like Upendrakishore Raychaudhuri, Manmatha Mokhopdhyay, Shibnath Shastri, Ramendrasundar Tribedi, Rambrahma Sanyal, Bhubanmohan Ray, Jagadananda Ray, and Dwijendranath Basu – most of whom were already admired by young readers for their other pursuits - were regular contributors to the science sections in *Sakha*, *Sathi*, *Sakha o Sathi*, *Mukul* and *Sandesh*. Apart from such illustrious names, there were, at the same time many other lesser known popularisers of juvenile science. The names of Nabakrishna Bhattacharya, Narendranath Basu, Indumadhab Mallick, Tejeshchandra Sen, Shashibhushan Mahalanabish, Rashbehari Sen and
Abinashchandra Lahiri feature prominently as science writers in the contemporary children’s periodicals. The periodical culture also produced numerous instances where acclaimed stalwarts like Dr. Mahendralal Sarkar, Acharya Jagadish Chandra Bose and Acharya Prafulla Chandra Ray either authored science articles for juvenile audiences or were celebrated as great Bengali scientists.

Acharya Jagadish Chandra Bose, the great experimental physicist and a pioneer in neurobiology, renowned for his avant-garde research on electromagnetic waves and the effects of electromagnetic radiation on plants, contributed articles of botanical interest for *Mukul*. “Gachher Katha” [The Story of Plants] and “Udvider Janmo o Mrityu” [The Birth and Death of Plants] were published in the first and third issues of *Mukul* (1895) respectively. These articles along with a third one, published in seventh issue of the periodical in 1898 have hardly attracted critical attention compared to the rest of Bose’s non-academic writings. Elucidating the invisible life of plants and trees for the young readers, the essays read as stories told in lucid, conversational language, written by a very gifted teacher and author. With the haunting beauty of a fairy-tale, Bose narrates the symbiotic friendship among birds, bees and plants:
The sight of blossoms on a tree fills us with joy. It seems that the tree also, is bursting with joy. When we feel happy we invite people over to our homes. When the flowers bloom, the tree also calls its friends. It cries out, “Friends! Where are you? Come to my home today. Look! I have put up coloured streamers of flowers, in case you can not find your way. You can see my colourful petals from a long way off.” (Mukul, Aug-Sept 1895, 40-41)

Often hailed as an unusual combination of a *sanyasi* [saint] philosopher and a brilliant scientist, much of Bose’s writings and his later research, were tinted with a touch of the romantic. His vision, as is evident in these simple articles he wrote for children, was inclusive of the internal and the psychological as opposed to the solely external and empirical:

Earlier, when I used to travel in hills and meadows on my own, I felt quite lonely. Then I learnt to love the trees, the birds and the insects. Since then I can understand a lot of their language – none of which I could ever grasp before. I did not know that these trees, though they can not speak like we do, have a life, eat like us and grow from day to day. Now I have begun to understand their ways. I can see that, like us, some among them are poor, they can feel pain and suffer and they also have to struggle to survive. Driven by poverty, some among them steal. Just as men have ethics, plants may also display some values. Trees have been found to help each other, they make friends amongst themselves. Self-sacrifice, the noblest of all human graces, is also present in them. As a mother protects her child even at the cost of her life, sacrificing life for
one’s young is not uncommon among plants. (Mukul, June-July 1895, 4)

Contrary to Pratik Chakrabarti’s analysis which labels these articles in Mukul as “rather conventional” in their ideas of the living and the non-living, they not only reflect his broad and sympathetic Eastern vision that made him unique as a scientist, but can also be seen to foreshadow his later path-breaking findings relating to similarities of responses between animal and vegetable physiologies.50

Upendrakishore Raychaudhuri, author, painter, illustrator, musician and a printer of repute started his writing career with scientific articles in Sakha and Mukul. His writings on science range from animal behavior, wild life, Entomology and Botany to Natural History, machines and modern inventions. One of the immortal authors who helped define a modern juvenile culture in Bengal, Upendrakishore began his celebrated career as a children’s writer with the article “Machhi” [The Fly] in Sakha.51 In the numerous amusing descriptions of insects and animals published subsequently in later issues of Sakha, Mukul and Sandesh factual knowledge is always enlivened with anecdotes and liberally infused with the warmth of his genial humour. For example, in such an article on the spider, he wrote:
The very mention of a spider reminds us of its web. The spider’s web has a twofold utility – it makes a home as well as a snare. Like the cow, a spider has small udders on its belly. From these is secreted a sticky gum. The air hardens this to from a thread for the web. . . . If any insect is unfortunate enough to get caught in a web, then it has but little chance of survival. The more it tries to escape, the worse the situation becomes till at long last it gives up hope. Till this point, the owner of the web had been watching things quietly. Once the time is ripe, it advances slowly. With its cobweb threads the spider binds the poor insect from all sides. The conquest complete, the spider has its meal.\textsuperscript{52}

“Jalakanar Galpa” [The Story of a Water-drop] demonstrated stages of the water cycle through an imaginary conversation between a boy and the water molecules in his glass of drinking water.\textsuperscript{53} His numerous treatises on nature and wildlife, on mosquitoes, tigers, otters, gluttons, elephants and talking parrots, on eating habits of snakes and hunter trees, are outstanding examples of science writings in the popular juvenile category. Unerring in his understanding the psyche of child-readers and an unparalleled story-teller, Upendrakishore never failed to enthrall his young audience. Furthermore being an able painter and a printer of excellence, Ray almost always added fascinating illustrations that instantly drew the attention of the young readers to the accompanying articles.
Another prolific writer of science in children’s periodicals was Rambrahma Sanyal, the first Indian superintendent of the Calcutta Zoological Gardens and a person especially gifted with a natural inclination and aptitude for animal science.\(^{54}\) Published serially in *Sakha* and *Mukul*, his articles spanned the range of animal science, botany and anthropology. As a man having an immense amount of first-hand knowledge of animal behavior, with an expertise in acclimatisation and breeding of animals wild and domestic, foreign and indigenous, and a journal-keeper, Sanyal was obviously equipped with all ideal attributes for authoring natural science topics for children – an audience who must have been frequenters to the zoo.\(^{55}\) An enthusiast for arranging diverse exhibitions and wholeheartedly committed to an improvement of the Gardens, he had a good idea about popular interests and wrote extensively on a variety of animals including lemurs, zebras, seahorses, migratory birds, dolphins and crocodiles. Jagadananda Ray, Dwijendranath Basu and Ramendrasundar Tribedi were among the other well known writers of science who penned articles on topics related to the natural and physical sciences in the children’s periodicals. Just as Jagadananda Ray, later a teacher of science at Tagore’s *ashram* school at Santiniketan, was particularly known for his lucid and clear style of articulation on scientific topics, Tribedi, a professor of science at Ripon College also had a reputation for writing thematically rich essays on popular science.
In his research on the scientific contents in *BOP*, Noakes finds that the writers responsible for the science materials were mostly British males, of whom “many were retired scientists, technicians, or medical practitioners, some were clergymen, several were military officers and sporting personalities and many were journalists and writers of novels and children’s books” (159). Though his case study covers a wide spectrum of science related matter like natural studies, experimental lessons, adventure stories, biographies of scientists and articles advocating scientific leisure, the essay however does not mention a single woman contributor in these areas. On the other hand, juvenile periodicals like *Balak*, *Sathi* and *Mukul* testify to a number of women writers authoring articles of scientific interest for children in the late nineteenth century period. In 1883, Narendrabala Devi wrote four essays on the sun, the properties of light waves, the laws of optics and on atmospheric pressure in *Balak*. Her explanations were often worked out through analogies that communicated the abstract concepts of science in more concrete and easily comprehensible terms. For instance, for conveying an idea about light and sound waves, she wrote:

Imagine a pond that has two banks on opposite sides. You are bathing at one and me on the other side. If I try to touch you from a distance, I shall either have to throw something at you or I shall have to splash the water so that its waves reach up to you and hit you. When I talk to you how do you hear my words? No object is
being thrown from my mouth towards your ears. The air near my mouth is set in motion [by my words] and the waves thus created ripple through the air and hit your ear drums. (Balak, Aug-Sept 1885, 251-2)

Priyambada Devi’s “Bigyaner Pari Rajya” [The Fairyland of Science], a serial published in Mukul employs an enchanting fairy-tale discourse to draw the readers to the modern wonderland of science. Using well-known motifs of magic wands, sleeping spells and allegories of renewal and joy, this apparently feminine narrative is an intriguing piece of juvenile science writing, conspicuous in its difference from the other more factual and more ‘masculine’ modes of science journalism. Labanyaprabha Basu and Abala Basu, sister and wife of Sir J.C. Bose respectively, had been regular contributors in Mukul. Both frequently wrote on science-related topics like “Madame Curie”, “Sureshder Bagan” and “Itar Pranider Daya” [Kindness in Lesser Creatures] and so forth. Dr. Sushila Devi, one of the first lady doctors to have graduated from the Campbell Medical School, authored “Udvider Katha” [On Plants] for Sathi.

The few women writers who contributed to the early issues of Sakha and Mukul had remained anonymous. While liberating reformations were taking place among the elite and educated which enabled some women from enlightened households to be part of the new worlds, a deep-rooted conservatism continued to be guarded about the
nature and extent of women’s education in the larger section of the society. Also, even as an elementary *pathshala* education for girls was getting a wider acceptance, their chances of continuing higher education in school and after matriculation were still difficult propositions for most.\(^6\) The lives of Kadambini Ganguli, Abala Basu and Sarala Devi testify to the enormous obstacles faced by women pursuing a professional degree or a career.\(^6\) Under the circumstances, quite understandably, girl-students’ intellectual aspirations were limited by boundaries that defined the ‘male’ and the ‘female’ areas of education. Whereas the liberal arts were seen to be conducive to the gentler disposition of young women, empirical science was considered to be suited for the stronger and stouter mettle of the masculine race. In the context, then the names of these women, appearing as writers of scientific articles, spoke not only of a deeper internalisation of science in the social fabric but further strengthened, for the young readers, the sense of an indigenous authority in the domain of science.

Numerous biographies of Bengali scientists and articles describing the inventions and pioneering researches of Bengali professionals in the fields of science and technology were also compelling evidences that indicated to the child readers, a growing indigenous authority in the scientific disciplines. In the article “Acharya Basur Natun Abishkar” [The New Discovery of Acharya Basu] Indumadhab Mallick attempted to
inform children about Sir J.C. Bose’s avant-garde research on tracking mechanically the responses of plants and metals:

You are sure to have heard about Jagadish Chandra Bose’s scientific discovery. All over the world scientists have been discussing the subject. The matter is quite complex and though you cannot hope to grasp it wholly, I will try to give you an outline of his research. The crux of his discovery is that, just as animals have life, so do plants. Even metals like iron or gold have a somewhat similar kind of life. Have you ever heard of such a thing? With the help of a special mechanical apparatus, Professor Bose has conclusively proved this.63

Along with such names as Newton, Michael Faraday, Madame Curie and Charles Darwin, the periodicals also provided their readers with the lives and works of indigenous scientists, technicians and doctors. As part of their illustrious biographies series, periodicals like Mukul, Sandesh and Amar Desh published articles on eminent Bengalis like Sir J.C. Bose, Acharya Prafulla Chandra Ray, Dr. Mahendralal Sarkar and Dr. Suresh Prasad Sarbadhikari. The obituary written on the late Dr. Sarbadhikari not only alluded to his brilliance as a doctor but asserted his unmatched surgical skills. “Such operations had been the monopoly of English doctors and in case of a surgical necessity we had to depend entirely on the sahib-doctors. Suresh Prasad had acquired such a mastery of
surgical methods that professionally he was unparalleled in the entire country. He has proved that Bengalis will not remain backward in any field – given the minimum of opportunities, they can prove their outstanding competence." An article in *Mouchak* while celebrating the indigenous entrepreneurship symbolised by the factory of Bengal Chemical, paid a tribute to its founder – the acclaimed scientist Acharya Prafulla Chandra Ray, in explicitly nationalist terms. Such writings, embedded in a nationalist discourse and using a patriotic parlance, were eloquent examples of a growing indigenous excellence in science and were doubtlessly meant to inspire a sense of racial and national pride in the young readers.

As the history of colonial science moved from dependence to independence, so also the articulations of popular science acquired a greater degree of indigenous authority. Many of the writers who helped to familiarise the juvenile audiences with the formal disciplines of science and sought to popularise them through leisure activities in entertaining ways, were on a wider plane, re-articulating science on nationalist terms. Mahendralal Sarkar, Ramendrasundar Tribedi, Jagadish Chandra Bose, P.C. Ray and many more among them were men with a common mission. They were committed to the cause of shaping a ‘new India’ as a nation which, along with its ancient mystic spirituality, would also be reinforced with the modern strengths of science and technology.
Coming up in what was undoubtedly the Darwinian age in Science, it is hardly surprising that the periodicals display a keen interest in fields like Natural History and Anthropology. Such interests, triggered by popular texts like Mantell’s *Wonders of Geology* and the fantastic displays of the fossilised remains of strange and fantastic beasts like the Ichthyosaurus and the Plesiosaurus in public museums, had already caught the English imagination by storm by the middle of the nineteenth century. Indeed, far from being confined to naturalists’ journals, antiquarian collections and formal scientific disciplines, the perusal of natural history had become a popular pastime that invaded English drawing rooms and schoolrooms. Its popularity among children was tapped by the juvenile periodicals as well, which contained “a large proportion of material on natural history, especially in connection with collecting and exhibiting of specimens” (Noakes, 161).

Reflecting the same intriguing fascination with the prehistoric, almost all the major Bengali children’s periodicals (for example *Sakha*, *Sathi*, *Mukul*, *Sakha o Sathi* and *Sandesh*) show a palpable emphasis on subjects dealing with the evolution of the earth and the various forms of prehistoric life. Articles like “Mammoth”, “Archaeopteryx” or “Sekaler Sarisrip” [Prehistoric Reptiles] and the serial “Sekaler Katha” [Tales of a Past Age] by Upendrakishore Raichaudhuri sought to bring their audiences parts of the relatively new and extraordinary accounts of earth
history that was gradually unfolding in the Victorian era [figure 2.7]. Startling illustrations of immense, fabulous-looking beasts at once drew attention to the accompanying articles which seemed, to the wide-eyed child readers, no less outlandish than the flying, fire-breathing dragons or the beastly ogres from the world of fairy tales [figure 2.8]. In *Art and Nationalism* Partha Mitter refers to a particular illustration in *Sandesh* where “a gigantic brontosaurus lurks above the trees of Eden gardens, Calcutta’s best known park, as a cricket match takes place” and explains how “the immensity of the creature is brought home by juxtaposing it with a familiar winter sight in Calcutta” (132). Names and pictures of the monstrous lizards and ferocious dinosaurs like Plesiosaurus, Ichthyosaurus, Megalosaurus, Iguanodon, Tyranosaurus filled the pages of the juvenile journals with wonder-tales of natural history. These illustrations printed in wood engraving, lithographs and later with half tone technology helped recreate the primeval environment of a Jurassic era. Apart from familiarising children with the science of Natural History and bringing them visual treats of things unseen and unimagined, such writings were almost always informed by the recently emerging views of evolution. Articles like “Sekaler Lorai” [The Battles of the Long-ago] with illustrations showing these giants being attacked by each other also brought home the messages of ‘nature at war’ and of a ‘competition’ for survival.
Figure 2.7. Illustration of Archaeopteryx, *Sakha*, October 1888.

Figure 2.8. Illustration, “Sekaler Badur” [Bats of an Ancient Age], *Sandesh*, February-March 1917.
A short step away from the world of prehistoric tales told by stony fossils and gigantic skeletal remains was the history of Man himself. Mapping the earth’s history invariably involved the study of human evolution - a topic that was the mainstay of the Victorian debate after momentous publications like Chamber’s *Vestiges of the Natural History of Creation* (1844) and Darwin’s *The Origin of Species by Means of Natural Selection* (1859). If one admitted evolution, with the possibility of transmutation, the pre-historic creatures became [Man’s] distant ancestors. To this idea of “development in nature” Darwin brought the idea of competition for food and for life.

He was immediately concerned with plants and animals, but there was no escaping the fact that the society in which Darwin lived was also one that was increasingly mediated by competition . . . It was witnessed, in turn, with various manifestations of ‘Social Darwinism’ beginning with Herbert Spencer’s famous phrase, ‘the survival of the fittest’. (Freeman, 191)

Darwin’s ideas, set in a social perspective, with Malthus’ principles of political economy in tow, were voiced in the article “Jibansangram” by Srishchandra Majumdar in *Balak*. Majumdar wrote:

The phrase ‘struggle for existence’ is often used nowadays. It is being cited everywhere, in matters of literature, history, science
and philosophy. What does it actually mean? It would be good to know a little about it.

It was coined by the famous Darwin-sahib . . . Take, for instance, the example of two tigers born at a place where there is scarcity of meat. The one who survives will be the one who in spite of all difficulties manages to hunt food; it will be the winner in the struggle for existence. The other who could not secure food will die. But the one who does, not only gets to live but also breeds off-springs during its lifetime.

Struggle for existence is the inevitable result of an increasing living population . . . If everyone survived then there would not have been enough space on earth to accommodate all. Therefore struggle and conflict between two individuals or two races as ways to compete for a living is inevitable. (340)

Articles displaying anthropological and ethnological interests were not uncommon in the late Victorian Bengali juvenile magazines. Essays like “Shaotal Jatir Bibaran” [About the Santhals], “Naga Jati” [The Nagas], “Bharater Asabhya Jati” [The Uncivilised Tribes of India] or “Asamer Parbatya Jati” [The Hilly Tribes of Assam] manifested a new interest in the indigenous tribal people.71 Conveying reflections of what is usually broadly referred to as ‘Social Darwinism’ these writings often embodied a pronounced racial bias, albeit in scientific parlance.72 Science, a representative of the ‘progressive’ West as contrasted with the ‘unchanging’ Orient and the related technological and industrial arts that
had come to define the advancement of the West and its superiority over the East, blended well with the ideas of Social Darwinism and an imperial hegemony where the colonised were seen as being far below the colonisers in the evolutionary ladder. Working on the basis of this Eurocentric anthropology, such writings very often extended the imperial hegemonies within the indigenous population, where the tribal people were given a position much beneath the elitist Hindu classes in the plan of evolution.

“Bhil Jatir Bibaran” [On the Bhil Tribe], an essay on an Indian tribe in the Bibidhartha makes a clear demarcation between the civilised Aryans of India and its aboriginal native tribes like Garos, Nagas and Bodos. In the course of the article, the Aryan Vedic Hindus – in which fold the writer and his expected readers ostensibly belong - are seen to be distinct in racial origins from the ‘uncivilised’, tribal non-Aryans. “Buno o Pashu” [The Uncivilised and the Ape] is more candid in its hierarchical distinctions:

You know that Man, with his superior intelligence and kindness, is the greatest of all creatures. However, not all men have the honour of being the highest among animals. There is a heaven and hell difference between those who are civilised and those who yet remain in a barbaric state. The barbarians are men only in that they resemble their features, they are in actuality, a higher form of the ape.
At this point, referring to the accompanying illustrations [figure 2.9] of a human face and an ape, the article sets a task for the readers,

    Here I have provided you with illustrations of a barbarian and an ape. I am not going to identify them for you. You will on your own distinguish one from the other. 74

The article cites numerous instances from all over the world which act as evidences in favour of the author’s thesis. For example it states “a five-year-old Tuddusi boy was seen to have devoured three lamps, a large bar of soap and many seers of meat” or that ‘a Tupi while walking, bites the ground like dogs” or that “the barbarians of Fiji and New Guinea sell their children” (147).

    Around the same time, “Sabhya o Asabhya” [The Civilised and the Barbarian] in Mukul provides two episodes from recent history to subvert the established notions, thus challenging the Euro-centric hierarchies of the ‘civilised’ and the ‘uncivilised’. First it tells of the mean trick used under the pretext of peace and friendship by the cunning Hojeda, a Spanish general under Columbus, in order to trap Caonabo, an indomitable Indian chief whom they were otherwise unable to subjugate.
Figure 2.9. “Buno o Pashu”, *Sakha o Sathi*, November-December 1897.
Having narrated this story of treachery and deceit of an European race, it next relates how another Indian chief known by the name of Maiobanex, had refused to surrender a fellow Indian to the Spaniards on the face of a losing battle. “You have some idea about the significance of the term ‘civilisation’. Decide then, who between the Indian and the Spaniard displayed the qualities associated with civilisation?”

Inventions, Automations and Industries

The industrial and the imperial faces of the Empire were often brought together to amplify the beneficial effects of colonisation. A colonial genre of the late-Victorian period, the juvenile periodicals are expectedly replete with a range of writings on the Queen, especially so as the celebrations leading up to her Jubilee year in 1887, fell well within the high tide of Bengali children’s magazines. In fact *Mukul* had published a full-length Jubilee issue in June 1897, specially printed to commemorate the sixtieth year of the Queen’s reign. A similar article “Hirak Jubilee” [The Diamond Jubilee] in *Sakha o Sathi* not only eulogised the Queen but also presented the technological developments in the country as extensions of her benevolence:
The Queen’s subjects constitute no less than one fourth of the entire world’s population. To put it simply, Queen Victoria, the Monarch of Britain and the Empress of India, reigns supreme over an expanse that equals to one seventh of the globe. It is during her time that we have had facilities like the telegraph together with amazing developments of engine driven ships and coaches. Now it takes as little a time as twenty one days to reach England from Bharat. When the Queen had ascended the throne, there were no railroads in this country. Now railways cover the length and breadth of the land. Fifty years back we had only a few learned men in the country and now there is no dearth of educated people. Industries and agricultural work have advanced beyond imagination.

Arrangements for celebrating the Queen’s Diamond Jubilee are being made all over the world. Come, let us also join our humble voices with them and say ‘God save the Queen’.

Steam navigation, railways and the telegraph were indeed projected and perceived as icons of technological and industrial advancement in nineteenth century India. The juvenile periodicals, exploiting the child’s fascination with such marvellous mechanical inventions, had a range of writings on the steam engine, the railway car, war ships and the wireless communication. Apart from informative essays, the new world of industrial wonders was opened up for young readers through numerous poems, songs, stories and travelogues. Articles like “Railer Gari” [The Railway] or “Railgari” [The Railway] not only enumerated
the conveniences of this fast and efficient system of transport but also spoke volumes on the British benefactors and the munificence of the British Empire – the agencies behind the existence of the Indian railway [figure 2.10]. References to the railways were also frequent in the travel writings that formed a staple section of the children’s magazines. For instance, “Megher Muluk” [The Land of Clouds] a piece of travel-writing narrating a journey to the hill station of Darjeeling not only describes the little toy train that winds up the hilly tracks “like a great panting caterpillar” but also includes a photograph of the train moving around a bend in a cloud-capped hill top. Keeping the readers abreast of the more improved and modern versions of the railway “Adbhut Railgari” in Sandesh explained the wonderful mechanics of the hanging railway, the monorail and an overseas railway track that connected America with Cuba. More interestingly, the theme became integrated with children’s games and playtime as well. The song “Railgarir Gan” [The Song of the Railway Coach] complete with musical notations was obviously meant to be sung by children as they lined up to form a chugging train:
Figure 2.10. “Railer Gari”, Illustrated article, *Sakha*, January 1883.
In the last quarter of the nineteenth century and through the first one of the twentieth century, there were a plethora of writings discussing modern technological inventions like steam ships, telephone, wireless, phonograph, airships, monoplanes, biplanes and submarines in the children’s periodicals.

Besides such essays on modern inventions and new technologies, a range of more general writings also helped build up an indomitable image of the British Empire - an entity that was synonymous with and invincible because of its industrial advancement. The large scale public exhibitions became, in Victorian and Edwardian England, the chosen means for displaying the power of the British nation as well as the spoils of the Empire. These elaborately planned spectacular displays of British
power and wealth not only boosted British morale but drew world-wide admiration and awe. The most famous of these, the Great Crystal Palace Exhibition of 1851 - the first ever “international industrial display”, was followed by a series of others held in England or in the major colonial cities like the London International exhibitions (1862, 1871-74), the Calcutta International exhibition (1883-84) and the Empire of India (1895) to name a few.\textsuperscript{82} Many of these exhibitions were represented in the children’s periodicals as big events. For Bengali children, articles like “Crystal Palace ba Sphatik Prashad Paridarshan” [Tour of The Crystal Palace], “Kolikatar Antarjatik Pradarshani” [The Calcutta International Exhibition] or “London Mela” [The London Fair] conveyed the towering images of an industrial empire.\textsuperscript{83}

As in the field of the sciences, in industrial matters too, the juvenile periodicals progressively manifested a subtle yet definite shift from the foreign to the indigenous. Native entrepreneurs, Indian factories, Bengali manufacturing firms and ‘deshi’ [indigenous] products become increasingly visible on the pages of the periodicals. This warm and fresh enthusiasm for economic self-reliance, a social revivalism for freeing the nation’s economy from the control of the profiteering colonisers, was part of the more wide-spread Swadeshi movement that, generating in the 1890s, took Bengal by storm in early twentieth century.\textsuperscript{84} Apart from articles addressing swadeshi issues and
advoeitng *swadeshi* principles, the printed commercials in the juvenile
magazines can be seen as eloquent documentations of the *swadeshi*
surge in Bengal.

Apart from announcements of new publications for children in the
stipulated sections of many periodicals, full page advertisements of a
wide variety of consumer products like cosmetic items, syrups, medicines
and sport goods had become common phenomena in the pages of the
magazines towards the turn of the century. Following the market of
children’s recreational reading, was the inevitable development of a larger
market where children were seen as consumers. The practice also had to
do with the financial support that the periodicals needed to keep their
offices running while maintaining an affordable price for their magazines.
During the turn of the century, the advertisements and commercials in
the Bengali children’s periodicals frequently embodied reflections of a
popular Swadeshi-ism. The movement proper, manifested in various
spheres, had declared an economic war against the Raj on two fronts,
first by boycotting all British-made goods that were abundantly and
cheaply available in the market and second by promoting as substitutes
indigenous manufactures - even at the cost of personal preference or
convenience.
In such a context, a true *swadeshi* spirit becomes apparent in the discourse that the advertisements used to sell their goods. Not only did the commercials declare their ‘*deshi*’ products to be ‘cheaper and better’ than their foreign competitors, they also urged their young readers to buy their indigenous products to bolster national economy instead of adding to the wealth of foreign nations. The frequently appearing advertisements for the wide range of floral essences or ‘*puspasar*’ from “H. Bose, Perfumer, Calcutta” endorsed indigenously manufactured perfumes and championed the *swadeshi* cause [figure 2.11]. “Why use foreign perfumes?” enquired the commercial. Following the question there appeared four reasons for the potential consumer to choose the H. Bose essences over any (of comparable or even doubly priced) foreign perfumes. The last point in the list stated, “The H. Bose essences are manufactured in this country, therefore, by buying H. Bose’s perfumes, instead of making Britain or Germany rich, you will be increasing the wealth of your own nation.”

Advertisements of indigenous consumer products like those of Kuntalin hair oil or the Delkhosh perfume from the firm of H. Bose were some of the commonest to be seen among the commercials in children’s magazines like *Mukul* and *Sandesh*. Sunirmal Basu, later a renowned author of children’s books, writing about his childhood memories of the “wonderful” periodical *Sandesh*, particularly recounts his vivid impressions of such a commercial, “I remember the
Figure 2.11. Advertisement of H.Bose Perfumes, *Mukul*, March-April 1903.
illustrated advertisements from ‘H. Bose, Perfumer’ printed on the back cover of Sandesh. In the picture, a person, waving his handkerchief proclaimed, ‘Bahut accha, dīlkhosh§ ho gaya’ [It is so good – my heart is full of joy] ----”. Also numerous were similar commercials advertising the Bengal Chemical Products, the firm synonymous with the grit and nationalist commitment of its founder, the leading scientist Acharya Prafulla Chandra Ray. The advertisements stressed on the national spirit of the firm while urging people to buy its swadeshi products: “The factory had never been a profit-making venture for any individual gain. Its one and only aim is to make medicines, chemicals and scientific instruments from indigenous materials using indigenous capital . . . [therefore] all well-wishers of the nation are sure to endorse this enterprise.”

An article in Mouchak featured this indigenous enterprise as a swadeshi triumph and proudly declared that “the factory of Bengal Chemical is Bengal’s pride, funded by Bengalis it is planned and run on Bengali intelligence and expertise” (Feb-March 1920, 373). Among other advertisements of indigenous goods that were visible to the readers of these magazines, were those of the various sports-goods manufacturers selling ‘swadeshi’ footballs and ‘swadeshi’ cricket gear and commercials of cosmetic items like the “swadeshi soap” by the Bengal Soap Factory [figures 2.12, 2.13].

§ The perfume was named ‘Delkhosh’ meaning ‘happy-heart’ in Bengali; the advertisement cleverly works on the meaning inherent in the name of the product.
Figure 2.12. Advertisement for “Swadeshi Football” by S. Bose & Co., *Mukul*, April-May 1913.

Figure 2.13. Advertisement for Swadeshi Soap by Bengal Soap Factory, *Mukul*, April-May 1906.
Also important in the context of juvenile magazines and children’s books (though not expressing a *swadeshi* agenda) were the advertisements of U. Ray and Sons, “process engravers, illustrators, art printers and publishers” who were also “the printers and illustrators of *Sandesh*” [figure 2.14]. Upendrakishore Raychaudhuri’s cutting edge research on process printing greatly helped periodicals like *Sakha, Sakha o Sathi, Mukul* and his own in-house journal *Sandesh* to captivate their readers with beautifully printed illustrations. By rendering in print a faithful reproduction of the naturalistic shade gradations of an intricate drawing, Upendrakishore’s methods infinitely improved the quality and texture of book illustrations. The perfectly printed and brightly coloured illustrations in *Sandesh* can indeed be taken as examples of his outstanding research in the field as well as of his firm’s ingenuity. Such advertisements from U. Ray and Sons, H. Bose and the Bengal Chemical speaking of an indigenous expertise and exhibiting products that matched and challenged their foreign, imported counterparts from the more technologically advanced West, can justly be read as visual images of an emerging modern and scientific Bengal.

Apart from the slogans that promoted indigenous goods with a fervent *swadeshi* enthusiasm, attaining economic self-reliance in the industrial sphere formed the subject matter of many articles in periodicals like *Mukul* and *Amar Desh*. The travelogue “Barishaler Patra”
The Sandesh is Printed and
Illustrated by

U. RAY & SONS.
Process Engravers, Illustrators, Art Printers
and Publishers.

100, GURPAR ROAD, CALCUTTA.

Figure 2.14. Advertisement of U. Ray & Sons, Sandesh, March-April 1917.
[Letter from Barishal] in Balak referred briefly to Jyotirindranath Tagore’s swadeshi business venture in water transport that ran in competition with the English-owned Flotilla Company. “The local people of Barishal, especially the school students, staunchly campaigned for our vessel against those of the Flotilla. In order to persuade people to use our ship instead of the English ones, some gentlemen and a group of school boys get up at four in the morning and assemble at the jetty everyday . . . pleading, “You are Bengalis, why should you take an English ship when there is a Bengali one? Do you not want the country’s economy to prosper?”

“Swadesh”, appearing in 1905 in Mukul, was straightforward in voicing its swadeshi agenda:

With a bit of thinking, you can easily find ways to help the people of your nation. Calcutta has a ‘Swadeshi Store’ as well as many other foreign shops. Many of you may know that the first one sells indigenous goods whereas the British stores sell articles of foreign-make. The indigenous goods have been made by our people whereas the foreign products are made by the English; the profit made out of selling an indigenous item goes to its indigenous maker while that made out of a foreign good goes to a foreigner. The blacksmiths of Kanchan-nagar make knives as do the British ones. If you buy a Kanchan-nagar-made knife from the Swadeshi store the profit goes to the poor blacksmiths of our country and also, in part, to the native shopkeeper; a foreign-made knife bought from a British store give away all the profit to foreigners and force our blacksmiths to die of starvation.
Besides writings upholding swadeshi artisans and economic self-reliance, the periodicals carried a few articles on grander and more inspiring figures like Jamsetji Tata. A pioneering Indian entrepreneur and industrialist and a nationalist by heart, Jamsetji was the founder of what would become in future the giant Tata Group of Companies. The articles focused as much on his vision of an industrial India as on his philanthropic work, especially calling attention to his contribution in developing a technical education for Indians.93

The cotton controversy, which was made the pivot of the Swadeshi movement, was also repeatedly discussed in the juvenile periodicals. The cotton mills of Manchester had virtually made the spinning wheel obsolete. Being machine made the British cotton was finer and cheaper than the indigenous homespun varieties. The indigenous weavers were thus coerced by the market into buying imported cotton threads. An article on the spinning wheel under the “Desher Katha” [About Our Country] section in Amar Desh lamented this plight of the native weavers and urged the young readers to come to their help [figure 2.15]. Their support, the article noted, is being solicited for a larger cause – for reviving a dying cottage industry and for strengthening national economy:
Figure 2.15. “Charka”, Illustrated article, *Amar Desh*, March-April 1921.
Many of you must have seen the *charka* [spinning wheel]. It is used to make threads out of cotton . . . Since the time our country has started importing foreign cloth, the wheel is getting extinct. There was a time when every village of this country had a settlement of weavers, their wives and daughters used to make threads sitting at the wheel; they polished them with starch and then dyed them in many colours. The weaver and his son wove fabrics on their looms and sold them to the villagers at the nearby *haat* [local market]. Since their business ran on this simplistic model, there were no middlemen earning hefty profits. Now those days are past.

Today our markets are full of imported cloths and towels and all other kinds of foreign stuff. These are produced in foreign factories and then sent in shiploads to India. These foreign-made cloths have usurped the market of indigenous fabrics . . . since the day we started buying finer and cheaper cotton, the foreign factory owners have got rich with gold and our weavers have starved. Young readers! Start using the thicker cloth spun out of the *charka*, then the country’s looms will turn again, the weavers will not go without food and we will regain what we have lost.  

Though the political turmoil of Bengal partition is not directly reported or discussed in any of the contemporary issues of *Mukul* – the most popular of the Bengali juvenile periodicals of the time, the political message of ‘*swadesh*’ and ‘*swadeshi*’ rang out loud and clear and were plentifully visible in the varied sections of the Bengali children’s magazines, especially in the early twentieth century. In a retrospective article on
Sandesh – a periodical she had virtually lived and grown up with (being a niece to Upendrakishore), Leela Majumdar says:

Of the many duties towards the motherland, that of moulding the children of the nation into fearless, strong and truthful citizens can be seen as the noblest. Sandesh was committed to such an ideal.

Nationalism is an extraordinary thing. On one hand, if someone insults or belittles the country, we need to protest immediately. On the other hand, calmly and quietly, we also need to reflect on the actual reasons behind the vilifications. Within ourselves, we need to be aware of our drawbacks and to admit our faults . . . Towards the end of the nineteenth century Swami Vivekananda had dedicated his life to this difficult and demanding ideal. Ten or eleven years after his death, Sandesh was carrying on the same work among children. As its many writings discussed the glorious aspects of the country so did they gently chide its weaknesses.95

What Leela Majumdar says about Sandesh becomes important in interpreting the nationalist mission and the patriotic spirit of the contemporary Bengali juvenile periodicals in general.

That the cultures of science and technology had come a long way form the translated and assembled chapters in Bodhoday and Charupath to the lively, entertaining and original articles in Mukul and Sandesh,
becomes apparent in the course of this critical analysis of the scientific contents of Bengali children’s magazines. From the children’s perspective, the significance of the shift obviously lay at a subtler, psychological level. It was through a changed attitude and a changed discourse that the entertaining and homely periodicals familiarised Bengali children with the culture of science. This was vastly different from the bits and pieces of foreign-words and formal knowledge learnt in classrooms and from school textbooks. Most importantly, the periodicals displayed an ever-increasing indigenous authority in the fields of science and technology which, therefore, no longer remained for the readers simply ‘Western’ or ‘European’ disciplines.
Notes to Chapter II


5. In the early and mid nineteenth century, there had been periodical publications meant for juvenile audiences like Digdarshun, Pashwabali and Jnanoday. For a more complete list of Bengali juvenile periodicals see Bani Basu, Bangla Shishushahitya Granthapanji (Kolkata: Bangiya Granthagar Parishad, 1965).


16. “It can well be said that there had been no other high-quality illustrated periodical for children before *Sakha*. The few that had existed had been published by the Christian missionaries, and were too full of matters related to the Bible, Christ and the teachings of Christianity for the liking of our boys. They could hardly have helped in educating the minds of Bengali boys.” See, Matindramohan Basu, *Sakha Sampadak Swargiya Pramadacharan Sen* (Kolkata: Kusumika Library, 1889). Some
of the magazines by Christian missionaries were *Digdarshun* (Serampore Baptist Mission), *Pashwabali* (School Book Society) and *Satyapradip* (Christian Vernacular Education Society). The same was also held true for *Balak-bandhu* (1878, weekly later turned into monthly), an ephemeral juvenile periodical edited by the radical Brahma leader Keshab Chandra Sen. *Sakha* was therefore the first periodical to emphasise its secular nature.

17. Basu, *Sakha Sampadak*, 67. The occasion recollected was a visit to a Brahmo friend’s country-house in the Barahanagar with a few of his students. During his appointment as a teacher at the City School Pramadacharan Sen had started a Sunday-school.

18. Editor, “Prastabana” [Introduction], *Sakha*, Januray 1 1883, 1.


21. “The Religious Tract Society was founded in 1799 with the express aim of providing moral stories in serial forms for children . . . While the RTS continued to produce cheap picture books and serials for children, its members also explored the prospect of producing periodicals by the turn of the century. Thus William Lloyd, aged nineteen, launched *The Youth’s Magazine; or, Evangelical Miscellany* in 1805.” Quoted in ‘Evangelical Tracts and Magazines for Children’, The Victorian Web.


24. According to Partha Mitter “*Sandesh* was distantly modeled on *Boy’s Own Paper*, the staple diet of children all over the empire.” See, *Art and Nationalism*, 131.

25. See, Nandy, “Alternative Sciences”, 24-25. He comments that “the prudish strictness of Brahma child-rearing was probably a reaction to the dominant Indian tradition of indulgence and non-interference in the process of early socialization.”


29. “Introduction” by Gowan Dawson, Richard Noakes and Jonathan R. Topham in Geoffrey Cantor et al., *Science in the Nineteenth Century Periodical: Reading the Magazine of Nature* (Cambridge: Cambridge University Press, 2007), 1. Dawson points out that “from the perspective of readers science was omnipresent” and therefore the general periodicals probably played a far greater role than the actual (and less read) volumes of science in disseminating scientific notions.

30. Tagore, who had lessons both at school and at home, recounts, “[f]rom time to time Sitanath Dutta would come, and we acquired some superficial knowledge of science by experiments with familiar things” and “[t]hen there were readings from Proctor’s *Popular Astronomy*, which my father explained to me in easy language and which I then rendered into Bengali”. *My Life*, 24, 34.

31. Tagore in his tribute to J.C. Bose also refers to the West as, “Bigyan lakshmir priya pashchim mandir-e”, “Kalpana”, *Rabindra Rachanabali* Vol 7 (Kolkata: Viswabharati, 1941), 157.


33. Aileen Fyfe explains why many authors recommended natural history as an ideal introduction to religion. Natural history “could also suggest opportunities for instructive conversations, since natural objects were often encountered in everyday life, and children were ‘easily charmed with the florciksome motions of the animals, the fine forms and beautiful colours of vegetables, [and] the appearance of the sky and the ocean.” See, Aileen Fyfe, “Young Readers and the Sciences”, in Marina


37. Mannathanath Mukhopadhyay, “Thakurdadar Galpa”, *Sakha*, June 1883, 91-94. A similar serial can be found in *Balyasakha* (1908), a later juvenile periodical.


46. Pratik Chakrabarti marks the early decades of the twentieth century as a time when, in a background of an expanding national movement (with the onset of the Swadeshi movement in the first decade and the emergence of Gandhi in the second), a group of Indian scientists emerged in the international sphere. Many of them, he points out “were actively involved in the political movements of the time” and were
committed, though in varying ways, to both science and nationalism. He argues that
the leading scientists of the day, like Jagadish Chandra Bose, C.V. Raman, P.C.
Ray, P.N. Bose, P.N. Dutta had earned a “greater legitimacy for science within the
nationalist discourse” by actively contributing to that discourse. See, Pratik
Chakrabarti, *Western Science in Modern India: Metropolitan Methods, Colonial

47. Many of the references used in the various *Bibidhartha* articles can be found in
*Monthly Magazine and British Register* and *Dodson’s Annual Register*.

351; H.Ch.C (psud.),“Baigyanik Sangbad”, *Balak*, February-March 1886, 534-35.

49. Jagadish Chandra Bose, “Gachher Katha ” [The Story of Plants ], published in two
parts in *Mukul*, June-July 1895, 2-5 and August-September 1895, 30-31
repectively; “Mantrer Shadhan” [The Powers of Science] *Mukul* October-November
1895, 105-07.

J.C. Bose—who almost single-handedly established India’s fame in scientific
research, was “destined to play a role greater than a scientist”. Bose was the “the
first voice from colonial India to be heard in the highest institutions of metropolitan
science” and “he created, in a way, a new east for the West to appreciate”. For an
assessment of his contributions as well as of his vision, refer to Chakrabarti,
*Western Science in Modern India*.

50. Chakrabarti locates the shift in Bose’s thoughts in a letter written to Tagore in the
March of 1900 whereas these articles were written prior to 1900. The eastern
spirituality which marked and defined much of his later work and becomes
apparent in these two articles on plant biology, was not drawn from the lineage of
the modern Western sciences but was India’s own.


54. Rambrahma Sanyal was originally hired as a supervisor of labourers and gardeners at the Calcutta Zoological Gardens and was eventually promoted to the acting superintendent of the zoo in 1880, shortly after the zoo became a government institution. He also authored *Hours with Nature* (1896) a book for children, where he recollects many of the practical lessons of animal science that he learnt as a child. See, D.K. Mitra, “Ram Bramha Sanyal and the Establishment of the Calcutta Zoological Gardens” in R.J. Hoage and William A. Deiss eds., *New Worlds, New Animals: From Menagerie to Zoological Park in the Nineteenth Century* (London: Johns Hopkins University Press, 1992), 86-96.

55. The zoo during Sanyal’s time had as many as 756 specimens, extracts from his daily journals appear in his book *Hours with Nature*.

56. Born in 1868, Narendrabala Devi was probably the first Bengali woman to author essays on science. She was married to Satyaprasad Gangopadhyay, a grandson of Debendranath Tagore of Jorasanko. Apart from *Balak* some of her writings were later published by Rabindranath in *Chhutir Para* [Holiday Lessons] – a compilation for children.


Abala Basu, hailing from an orthodox and devout Brahmo family had studied medicine for four years prior to her marriage and was later closely associated with the Brahmo Balika Bidyalay – a Brahmo school for girls. See for details D.M. Bose, “Abala Basu: Her Life and Times”, *Modern Review*, June 1966, 48.


60. Several issues of *Sakha* use short, cryptic forms like “Shrimati _” or “Kumari ___” to maintain anonymity of the women writers.

61. In her introduction to *The Many Worlds of Sarala Devi* Bharati Roys notes, “Although most reformers were supportive of female education, a bitter debate raged over the issue and extent of their education. . . . fearful that too much education
would make women westernized, promote disruptive individualism, and foster
disrespect of tradition they preferred different syllabi for men and women. Men were
couraged to take up science and women to opt for humanities. See, Introduction
Delhi: Social Science Press, 2010), 9.

62. Kadambini Ganguli, the first woman graduate under Calcutta University had to go
abroad to get her medical degree from which women were debarred under the
Calcutta University. When Ababla Basu had applied to study medicine around
1883, Calcutta University, having no provisions for women to enroll as medical
students, had rejected her application. She had studied medicine at Madras
University on a stipend given by the University of Calcutta. See, Geraldine Hancock
Forbes, *Women in Colonial India: Essays in Politics, Medicine and Historiography*
(New Delhi: DC Publishers, 2005),125. Sarala Devi, though from one of the most
liberal families of Bengal, was also not able to pursue Science for her higher studies
and graduated with honours in English. See, *The Many Worlds of Sarala Devi*.

63. Indumadhab Mallick, “Acharya Basur Natun Abishkar”, *Mukul*, March-April 1906,
186-87.

64. “Swargiya Daktar Suresh Prasad Sarbadhikari” [Late Dr. Suresh Prasad
Sarbadhikari], *Amar Desh*, May-June 1921, 13-14.


66. See, for instance, Anilchandra Ghosh, *Bigyane Bangali* (Dhaka: Presidency Library,
1929).

67. For a full and lively discussion of the British Victorians’ fascination and engagement
with the prehistoric, refer to Michael Freeman, “Let There Be Dragons”, *Victorians
and the Prehistoric: Tracks to a Lost World* (2004, repr. New Delhi: Orient Longman,
2006), 131-162.

Sarisrip” [Prehistoric Reptiles], *Sakha o Sathi*, July-August 1897, 80-82.
Upandrakishore Raychaudhuri authored the serial “Sekaler Katha” [Tales of a Past Age] in *Mukul* (1899) which he later published as a book.

69. “Sekaler Lorai”, *Sandesh*, December-January 1914, 282-84.

That such writings and illustrations generated scientific interest and whetted free imagination in children can be seen from Punyalata’s childhood memoir. She recollects how as children, they were intrigued with the big illustrated volume of prehistoric animals in Upendrakishore’s possession and how her eldest brother Sukumar used to entertain them with stories that he invented from the pictures.


71. Rambrahma Sanyal, “Bharater Ashabhya Jati”, *Sakha*, July 1887, 97-102; “Shaotal Jatir Bibaran”, *Sakha*, Januray 1888, 12-13; “Naga Jati” *Sakha*, February 1888, 17-22, Dwijendranath Basu, “Asamer Parbatya Jati”, *Sakha*, May 1892, 73-76. The author of these articles, Rambrahma Sanyal, was an employee at the Zoological Gardens Calcutta. In August 1883, two natives from the Andaman and Nicobar islands were brought as live exhibits as part of the Calcutta International Exhibition and were displayed to the public at the Zoological Gardens under the shade of a tree. See, *New Worlds*, 88. From this account it seems that Sanyal, by the virtue of his work, could have had the opportunity of such interfaces with other tribal people as well.


85. Advertisement of “H. Basu-r Puspasar”, *Sandesh*, 1917. Hemendramohan Bose, better known as H. Bose, was the first successful manufacturing perfumer of India. All of his numerous products like hair oils, hair wash, perfumes and scented waters,
syrups and Tambulin, a mouth freshener, had won a big market. The firm also funded the ‘Kuntalin puraskar’ or the Kuntalin prizes, which were awarded to the winners of the various creative competitions announced in *Mukul*.

86. Sunirmal Basu, “Upendrakishorer Sandesh”, Appendix, *Sandesh* Vol 2 (Kolkata: Parul Prakashani, 2010), 388. Sunirmal Basu was a school boy living in Giridih when *Sandesh* came into being. He and his friends eagerly awaited the fresh issues of the periodical (which arrived by post) on the first of every month. The article tells of the enormous charm that the magazine held for contemporary children and is proof of its popularity in towns outside Calcutta.


