

**Topic: Science Writings in the First Assamese Newspaper *Orunodoi***

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**Abstract:**

*Science communication is gaining momentum in the present day world. Science communication in modern sense started in Assam with the publication of the first Assamese newspaper the Orunodoi Sambadpatra in the 19<sup>th</sup> century. The tradition of writing on subjects related to science for the common people started with the science writings in Orunodoi. Orunodoi took the responsibility to educate the people of Assam with the information of the various developments in the field of science and technology in the western countries of the world. A systematic study of the science writings is required to observe the contribution of Orunodoi towards this field. In this research paper it is aimed at to discuss various aspects related to the science writings published in Orunodoi, including the subject matters, formats and language and vocabularies used in those writings.*

*Key words: Science Writing, Science Communication, Orunodoi, Assamese Newspaper.*

**1.0 Introduction:**

Science writing in true sense appeared for the first time in Assamese language with the publication of the first Assamese newspaper Orunodoi Sambadpatra. It was published by the American Baptist Missionaries in 1846 from Sibsagor Mission Press. During the 17<sup>th</sup> and 18<sup>th</sup> centuries Assam witnessed social and political unrest due to the civil war and foreign invasion known as the Mowamoriya<sup>1</sup> Revolution and Burmese invasion<sup>2</sup> respectively. Taking the full advantage of the weakness of the then Ahom kingdom in Assam, British came in to establish peace in the land. In 1826 according to the treaty of Yandaboo, Assam went to the hands of British<sup>3</sup>. Later, British established a colony in Assam and started to rule completely over the entire land. In such a situation the traditional way of gathering knowledge had almost come to a halt. British imposed the Bangla language in the courts and revenue

offices<sup>4</sup>. This was the dark period of Assamese language and literature. In such a critical point of time, the American Baptist Missionaries arrived at Assam like angels to save the Assamese language.

Apart from publishing books, the most remarkable contribution of the American Baptist Missionaries towards Assamese language was the publication of Orunodoi Sambadpatra, the first Assamese Newspaper. Later in January 1851, the name of Orunodoi Sambadpatra in the masthead was replaced with the word 'Orunodoi'. In the print line of the first issue of the Orunodoi Sambadpatra it was written as:

“The Orunodoi, a monthly Paper, devoted to Religion, Science and General intelligence, is printed and published at the Sibsagor Mission Press, by O.T. Cutter, for the American Baptist Mission in assam. Price, one Rupee per annum, in advance, or one and half at the end of the year.”<sup>5</sup>

So, it is observed that right from the very beginning Orunodoi Sambadpatra aimed at to inform people about science and general intelligence along with its primary aim to propagate Christianity. In that sense it can be said that Orunodoi was the originator of science writing in Assamese language.

### **1.01. Importance of the study**

Science Communication or popularizing science among the common people is gaining momentum in present times in India along with the entire world. Assam being one of the North-Eastern States of India too has a history of this kind of practices. It started with the publication of Orunodoi. So, a systematic study of the tradition of science writing in Orunodoi is an important subject for a researcher in the field of science communication in Assam. Such a study can unveil several facts which can be great help for science communicators to carry out their activities in present time.

### **1.02. Objective of the study**

To carry out a systematic analysis of the science writings published in Orunodoi is the main objective of this research paper. Though several attempts have been made to evaluate the importance of Orunodoi in the context of Assamese language and literature, a comprehensive and systematic study of the science writings published in Orunodoi is yet to be conducted. In this research paper it is aimed at to study the various aspects related to the science writings published in the first Assamese newspaper. Among these the subject matters, vocabulary and the format used in science writings are aimed to discuss in this research paper.

### **1.03 Area of Study:**

To study the various aspects of science writings in Orunodoi, as many as 168 issues of the newspaper published since 1846 to 1868 were taken as the universe of the research. Though Orunodoi was published till 1882, the later issues are not available in present times. Only nine issues of Orunodoi are available after 1860. So, the research work is based on the available issues of the first Assamese newspaper.

In 168 issues of Orunodoi, as many as 238 science writings have been found. These science writings are considered to be the texts for this research work.

## **2.0. What is Science Writing**

Robert Gannon in the Introduction of his book 'Best Science Writings' said,

“Science writing is often confused with technical writing and scientific writing. It is neither. The difference lies mostly in the audience. The technical writer prepares “technical” material – reports, memos, brochures - for a captive audience that needs the data: a client, a colleague, an organization. A scientific writer preparing scientific papers, writes for readers who want the information – many of whom are in the discipline and must keep abreast of what’s happening.

But the science writer (or science journalist) addresses the lay public. This job is much more complicated. The science writer must make complex theories and systems clear to a large, diverse readership, and must do so with the utmost clarity, accuracy and excitement. He or she must win the hold the attention of readers who don’t need the information, are easily bored and demand to be convinced that what the writer has to say is worthy of their continuing attention. Bored readers quickly flip to other articles.

So the science writer’s most difficult task is to make the story interesting. This is done with pleasing styles, colourful anecdotes, sparkling quotes, clever descriptions and other devices that dramatize the information.”<sup>6</sup>

Duke University in North Carolina in its official website also defines it as,

“Science writing is writing about science for the popular media. The audience is much more general -- anyone with an interest in science.”

Some universal characteristics of science writings can be derived from the above definitions of science writings.

- i. Science writings are the bridge between scientific knowledge and common people
- ii. Aim of scientists is precision, but the aim of science writers is simplicity
- iii. Science writing is about the 'science's human application'.
- iv. Science writing is about interesting facts to enrich knowledge of the common people.

So, the qualities of good science writing are accuracy, using appropriate expression intelligible for common people and containing information important for the common people.

### **3.0 Data analysis technique:**

In this research work the Content Analysis technique is used to analyse the data. According to Bernard Berelson (1952), Content Analysis refers to a research technique for the objective, systematic and quantitative description of clear content of communication. It is a research instrument that is focused on the actual content and internal features of media. Content analysis is used to establish the presence of certain words, themes, concepts, characters, phrases or sentences within a given text. It enumerates this presence in an objective manner. This text include books, essays, interviews, discussions, newspaper headlines and articles, conversations, speeches, or even historical documents.

In this study, the media texts are the science writings in Orunodoi. So, content analysis is the most appropriate technique to analyze data.

#### **3.01 Classification of science writings according to Subject matters:**

For convenience of classification, science writings are divided into four main groups according to the four fundamental branches of science. These are writings on formal science, natural science, social science and applied science. The formal science or the pure science includes the two sub branches, writings on mathematics and statistics. Natural science is again divided into two main branches, Physical Science and Science of Living Beings. Physical science includes physics, chemistry, earth science and astronomy. On other hand life science has two branches, zoology and botany. Social science includes Sociology and anthropology. The applied science however includes the subjects of engineering, healthcare and agriculture. It can be represented in the following table:

Branches	Sub branches of Science	Science	
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of Science			
Formal	Pure Science	Mathematics Logic	
Natural	Physical Science	Physics Chemistry Earth Science Astronomy	
	Science of Living Beings	Biology	Zoology Botany
Social		Sociology	
		Anthropology	
Applied		Engineering	
		Healthcare	
		Agriculture	

Table :1 Different branches of science

According to the classification of different branches of sciences, the science writing published in Orunodoi have been categorized in the table given below:

Formal Science		Natural Science						Social Science	Applied Science	Total
		Physical Science				Life Science				
Math	Statistics	Physics	Chemistry	Earth Science	Astronomy	Zoology	Botany	Social Science	Applied Science/Technology	
3	4	7	0	52	12	97	5	19	39	238

Table: 2 Classification of Science Writings published in Orunodoi

From the above table it is clear that most of the science writings are written about life science. As many as 109 writings are found devoted to life science. Among those, as many as 97 are written on zoological subjects and 12 are devoted to botanical subject matters. Next to it writings on physical

science have the highest number. There are 52 writings on Earth Science, 12 writings on Astronomy and seven writings on physics. Orunodoi published as many as 39 science writings on applied science and 19 on social science. There are only seven writings on pure science in Orunodoi.

### 3.02 Formal Science

There are only three writings on Mathematical subjects and four on Statistical subject. So, compared to the writings on the other branches of science, very few writings of formal science are found in the pages of Orunodoi. The writings on mathematics and geometry are: *Arithmetical Questions*, *Area of circular field* and *Curious Calculation 10<sup>14</sup>*. Likewise, there are four statistical writings found in Orunodoi. These are: *Area of the Earth and Population*, *Census in Calcutta*, *Population of London* and *Population of India*. For the first time the census data was published in Assamese in the pages of Orunodoi.

### 3.03 Natural Science

#### A. Writing on Physics in Orunodoi:

There are seven writings on physics published in Orunodoi. These are: *Description of iron*, *Cause of Rain*, *Attraction of Earth (Newton's Principles)*, *Diamonds in the Great Exhibition (ruby, sapphire, emerald etc.)*, *Attraction and Heat*, *Cause of rain* and *The Air*. All writings are introductory level writing on the different subjects. It is remarkable that for the first time Orunodoi introduced the people of Assam with the Newton's Principles regarding the attraction of the Earth. It can be mentioned here that writing on physics in Assamese language first appeared in the pages of the Orunodoi.

#### B. Earth Science

Orunodoi contained as many as 52 writings on Earth Science. Most of those were geographical description of various countries in the world. There were only 8 articles describing other than those subjects. These are '*Lava on Hecla Mountain*', '*Shape of the Earth*', '*Petrified buffalo*', '*Niagra Falls*', '*Volcano*', '*Variation of climate in different latitude*' and '*measurement of the earth*'.

The topics of the writings on earth sciences in Orunodoi are:

*Lava on Hecla mountain (Volcano)*, *Shape of earth*, *Discovery of America*, *Description on Earth*, *Petrified buffalo*, *The Northern Hemisphere*, *Coming to India from Europe via Cape of Good hope*, *Coming to India from Europe via Cape of Good hope*, *Geography of Southern Africa*, *Niagara falls (Account of celebrated Cataracts)*, *Northern countries of Asia*, *Portion of Turkey in Asia*, *Syria and Palestine*, *Geography of Arabia*, *Geography of Africa- Account of Egypt*, *Description of Persis*, *Midland*

*of America: the valley of the Mississippi, Geography of the Atlantic States, Western States of North America, Account of Kashmir and Geography of British North America.*

### **C. Astronomy**

As many as twelve writings on Astronomy in Orunodoi are found on the topics: *The solar system, New Planet viewed, Eclipses in 1848, Constellation of the Great and Little Bear and Cassiopeia, Eclipse of the sun in Feb. 23, 1849, The solar system (gravitational force), The Moon part I, The Saturn, The Sun, The Moon part II, Astrology and fortune telling and The sky and the heavenly bodies.*

The first one was the introduction to the Solar System. Only seven planets were described in the writing till that time. The seventh planet was not named as Uranus at that time. It was known after its discoverer William Herschel. The next article was about viewing a new planet. The description of the comet was also seen in the writing. The first credible description of the solar system was found in Assamese language in the pages of Orunodoi. Likewise, the first reliable description of eclipse in Assamese language was found in the article 'Eclipses in 1848' published in Orunodoi. Another interesting writing was '*Jyotish and Jyotebettar Kotha*' (Astrology and fortune telling). Through the conversation of two characters, 'V' and 'Ru' respectively the writer tried to find out the superstition associated with astrology.

### **3.04 Life Sciences**

a) Zoology:

- Description of birds in 19<sup>th</sup> century Assamese periodical

Orunodoi introduces various kinds of birds found across the world to the people of Assam. It is the Orunodoi which for the first time introduced the subject ornithology in Assamese language. Ornithology is a branch of zoology, devoted to the study of birds. The article on the 'Ostrich' published in the issue of Orunodoi, September 1849 may be considered as the first ornithological writing in Assamese language.

In Orunodoi there are as many as 37 writings about birds. Those are written on the topics like *Hornbill, The horned pheasant, The Hoopoe, The white or Barn owl, European Quails, Pigeons, Vulture, House Maina, Dove, Lesser Adjutant Stork, Weaver Bird, Ostrich, Dodo, Cassowary, Emu, Krakatau, Goliath Aratoo, Owl in England, Bird of Paradise, Curl Crested Aracari, Riya, American Wild Turkey, Ruff Bird,*

*Crested Screamer, Megapode, Gannet or Solan Goose, Grouse, Laipoa, Red Partridge, Umbrella Bird, Lyre Bird, Toads Regius, Crowned Goura Pigeon, The Silver Pheasant and Poi.*

- Description of animals in 19<sup>th</sup> century Assamese periodical

Like the writings on birds, Orunodoi devoted several articles to write about the animals. As many as 44 writings were found written on animals. The topics of the writings of this kind were: *The Lion, Pangolin, The Tiger, The Elephant, The Rhinoceros, The whale, The Buffalo, The Ox, The Cow, The horse, The Alpaca or Peruvian Sheep, Giraffe, The Beaver, The Hippopotamus, Kangaroo, Platypus, Wolves, Pangolin, The Zebra, Marmoset, Apes, Gibbon and Monkey, The Porcupine, The Ibex or Mountain goat, Armadillo, The Chlamyphorus or Piehiciaage, The Seal, The Black Tiger, The polar or white bear, The Walrus, The gnou or horned horse, Wild sheep of Punjab, The Elk, The four horned sheep, The Tapir, The Alpaca or Peruvian sheep, The Opossum, The Wild cat, The Capybara, The Oryx, The River Porpoise and The Bear.*

It can be said that Orunodoi established the tradition of studying the animals as a subject. So it published articles on the animals both familiar to the people of Assam and which are not seen by the people in their lifetime. So, by that way, Orunodoi enriched the knowledge of the people of Assam.

- Writings about reptiles in 19<sup>th</sup> century periodicals:

Five articles are found in Orunodoi describing about reptiles. The articles are : *The Rattle Snake, The Iguana, The Tortoise, Sea Serpent and The Cobra.* Among all these the article on the sea serpent described a creature the existence of which is yet to be ascertained. On the other hand all other creatures are found in different parts of the world.

- Writings about insects and other creatures in 19<sup>th</sup> century periodicals

Insects are a category of creatures with huge numbers found on earth. Orunodoi published several articles on insects. The writings included the topics like Locust in 1844, *The bee, Mole Cricket : Kumoti, and Lice in microscope.* The writings reflected the view of the writer with his keen observation of those insects. There are some other articles which described about some other creatures: *The Scorpion, Asiatic Centipede, Purubhuj (a kind of worm), The worm with shining head (Phulgoria), The great pipe fish or sea horse, A drop of water seen through microscope and Sea shells.*

Orunodoi first informed Assamese people about the blood circulation system (May, 1946) inside the body. It compared the blood circulation system in a human body to the water supply system in London



city. Other writings related to Zoology published in Orunodoi are: Children found among wolves, Pangolin killed at Sibsagar(Darika riverbank) and Difference between men and animal.

#### **b) Writings on Botany in Orunodoi:**

There are only five writings on plants are found in Orunodoi. Those are: *The clove tree*, *The Nutmeg tree*, *The Milk or Butter Tree*, *A wonderful tree : Fracksnila* and *The grapes*. Like the earlier subjects, Orunodoi introduced the botanical study in Assamese language with these five writings. Some writings on the plants, like the writing on Nutmeg Tree are comparatively shorter in length.

#### **3.04 Writings on Social Science**

Writing on social sciences was introduced for the first time in Assamese language by the Orunodoi. It emphasized to write about the local tribes of Assam namely Garos, Nagas, Khamtis, Mishmis, Singphos, Miris and Dophlas. In the writings the traditions and culture of the tribes are termed as uncivilized as they worship several gods and goddesses. In the 'Account of the Nagas' it is revealed that head hunting and other social evils are seen among them as they were not Christian. The writings tried to establish supremacy of Christianity on the local primitive religions followed by the local tribes. There are several writings which discussed about the good customs like remarriage of Hindu widows too. So, attempt to make social reforms and spreading the Christianity, both are reflected in the writings of social sciences published in Orunodoi.

Writings on Social Sciences are: *An account of Bhutan*, *Great Britain*, *Egypt (astrology, Pyramid, After Alexander)*, *Customs of different countries in disposing their dead*, *Description of Laplanders*, *Superstitious fear of Assamese in times of Cholera*, *Account of the Garos*, *Account of Nagas*, *Accounts of the Khamti*, *Account of Mishmis*, *Account of Singphos*, *Abors*, *Miris and Dophlas*, *Akas*, *The aboriginals of America*, *The character of Nagas*, *The Bushman*, *Remarriage of Hindu Widows*, *Writing for Hindu Widows about Iswarchandra Bidyasagar* and *Marriage in China*.

#### **3.05 Applied Science**

The writings on applied science in Orunodoi can be divided into two main groups. One is related to medicinal and health science. Another group of writings includes the writings on various technological developments. The writings related to health science published in Orunodoi are: *Injurious influence of*

*tobacco, Cholera : Letter from a student in Calcutta, The Chronic Dysentery, A remedy for cholera, Medicine for cholera invented, Medicine for snakebite and Medicine for dysentery.*

There are seven writings on health science in Orunodoi. The three writings on cholera indicate that it was a disease common in that time. The news of the invention of medicine for it was indeed a ray of hope for common people. The newspaper tried to make the people aware about health and hygiene and ill effect of drinking contaminated water.

- Writings on technology in Orunodoi :

Writings on technologies in Orunodoi cover the subjects like: *The Train, General Intelligence, Death in coal mines in England, Discovery of Printing Press, Ice houses in Calcutta, The Thames Tunnel: process of digging, The Eddy stone Lighthouse, The Balloon (1766 experiment), Russian Sledge drawn by Dogs, The Great Wall of China, Mr Maigre and his Balloons in Calcutta, Printing Press, Dangers of the whale fishing, First Printed Page, The Times Office, The Pearl Fisherman of Ceylon, Chinese Junk, Manufacturing of Decca Muslin, Microscope and a cruel boy, Account of Telescope, The Telegraph, The thermometer, Steam Engine , Sewing Machine, The Great Chinese Wall, The inventor of steam engine, Sulfur production, Gunpowder, Railroad Engine, Railroad Car, Electric Telegraph across sea, Tea Production in Assam statistics of last year, Account of London Bridge, The Thames Tunnel, Handmade paper, Death of cows, Watt inventing steam Engine, Quality of Tea, Opium Plantation and Rice Mill.*

Orunodoi worked like a window for the people of Assam to learn about the modern technological inventions. Earlier the people of Assam did not have the knowledge of the modern day technologies like Railway, printing press, light house, telegraph, thermometer, sewing machine, steam engine, rice mill etc. Orunodoi also described the techniques of construction of the tunnel under river Thames, the great wall of China etc. Writings of these kind appeared for the first time in Assamese in the pages of Orunodoi.

#### **4.01 Different formats of Science Writing:**

Orunodoi was experimenting with different techniques to popularize science among the people of Assam. To make the writings attractive, Orunodoi employed different formats of writing. It selected several genres of literature to convey the information about science. The table below indicates the different formats of science writing in Orunodoi with their numbers:

Science Writings in Orunodoi	
Formats	No of science writings
News	6
Article	227
Conversational	3
Letter	1
Poem	1
Riddle	0

Table: 3 Different formats use in Science writings in Orunodoi.

In Orunodoi, among the total 238 science writings, six are in the news format. 227 science writings are articles. Three science writings are written in conversational style. While one is written in letter format. There is another in the form of a poem.

From the above table it becomes clear that most widely used format for science writing in Orunodoi was the article or long essay type writing. Experimentation of using different formats in science writing started with Orunodoi in the 19<sup>th</sup> Century.

#### **4.02 The vocabulary coined by Orunodoi in the Science Writings:**

With the new knowledge and new information, Orunodoi brought a new era in the history of Assamese language and literature. For that Orunodoi required new vocabulary. The science writer in Orunodoi face problems for the scarcity of Assamese words to express things. In the issue of Orunodoi February, 1855 in the article 'The Railway' it is clearly mentioned that in Assamese it is impossible to explain everything about the Railway due to shortage of appropriate words<sup>7</sup>.

To overcome the challenge of the shortage of vocabulary, the Baptist Missionaries tried to translate the foreign words into simple Assamese words, which were nearer to the language used by the people of Assam. They coined Assamese names for the words and used ancient Assamese words to find out appropriate meaning of the foreign words. Where there was no Assamese word available to mean the foreign word, they used the foreign word with an explanation in Assamese. Dr. Maheswar Neog has prepared a long list of words used in Orunodoi.<sup>8</sup>

Some words from Persia, Hindi and Urdu also came into the writings of Orunodoi along with English words. However, the use of such words in science writing is very rare. It is because; most of the

scientific inventions are done in the western world. So, the vocabulary for those things is borrowed from the European languages, mainly from English.

Interestingly some such words used in the Orunodoi are used in Assamese language even in the 21<sup>st</sup> century. For example, Englishman (Ingarij), mile, bank, captain, collector, court (Kachari), insurance (Bima) etc. words are still used in Assamese language as used by the Orunodoi.

#### 5.00 Conclusion

From the above analysis, it can be said that the science writing in all the existing branches of science was first published in Assamese language in Orunodoi. So, the newspaper played an important role in popularizing science among the people of Assam in the 19<sup>th</sup> century. The trend of science writing in Assamese language originated with the publication of the Orunodoi in 1846. To, attract the readers, Orunodoi used different formats of science writing such as article, news, poem, conversational writing, letter etc. To explain scientific matters, Orunodoi coined some Assamese words where appropriate Assamese words were not available in that time. Some such words are still in use in Assamese language. So, the contribution of Orunodoi towards science writing in Assamese language is remarkable in several ways.

#### End-notes:

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