

Edward Blyth and the Asiatic Society

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Abstract

Edward Blyth, one of the early British zoologist spent twenty-two years in Calcutta as a curator of the museum of the Asiatic Society. His work as a taxonomist and field-observer drew the attention of Charles Darwin followed by exchange of letters. Darwin duly acknowledged contribution of Blyth in his books, particularly in *Descent of Man*. Because of large and varied stores of knowledge, Darwin valued Blyth more than any one. John Gould, the renowned ornithologist considered Blyth as one of the first zoologist of his time and the founder of the study of zoology in India. Blyth's study on the birds and mammals of Indian sub-continent was in details; the papers were mainly published in the *Journal of the Asiatic Society of Bengal*, *Proceedings of Zoological Society*, *Magazine of Natural History*, *Ibis Journal* etc. The South Asian fauna of both domesticated and wild varieties, as because of diversities were the chief attraction of Blyth. Calcutta being the centre of British activities in India during the middle of nineteenth century, was well connected and thus helped Blyth for the persuasion of his vocation. Blyth published some papers on 'natural selection' during 'thirties. Though Blyth never claimed any priority of the discovery of the theory of evolution over Darwin, some authors drew the attention of Blyth's 'early discovery' at a time when both Blyth and Darwin passed away. This paper duly dealt the controversy and made conclusion.

Key words: Breed, Curator, Evolution, Natural selection, Naturalist, Zoology.

1. INTRODUCTION

During the observance of birth-bicentenary of Edward Blyth (b. 1810) historians found large number of publications on him¹; the number is still growing because of his association with Charles Darwin and Blyth's 'discovery' of natural selection in a paper that was published thirty-four years before the publication of Darwin's *Origin of Species*. Blyth is considered as the 'father of Indian zoology'.

Indians are relatively silent on Blyth though he worked continuously for twenty-two years in the museum of the Asiatic Society,

Calcutta. Gould referred to him as "one of the first zoologists of his time, and the founder of the study of that science in India."² British scientists took interests in zoological science in colonial India lately. Even when the other European sciences were cultivated at the beginning of nineteenth century, zoology was not in their agenda. One of the reasons of aversion of zoology by the scholars of the newly founded Asiatic Society was the unfavourable attitude of its founder Sir William Jones. He said in an anniversary discourses:

Could the figure, instincts and qualities be ascertained either on the plan of Buffon, or on that of Linnaeus without giving pain to the object

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¹ Martin, 1911, p.45; Eiseley, 1959, pp. 94-114; Dobzhansky, 1959, pp.204-206; Beddall, 1972, pp.153-158; Schwartz, 1974, pp. 301-318; Brandon-Jones, 1996, pp. 501-510, 1997, pp. 145-178; Willnot, 2009, 36-37; Eiseley, 1979.

² John Gould, "Trochalopteron blythii", *Birds of Asia*, pt XXVI, Vol 3, London.

of our examination? Few studies would afford us more solid instruction, or more exquisite delight but I never could learn by what right, nor conceive with what feeling, a naturalist can occasion the misery of an innocent bird, and leave its young, perhaps, to perish in the cold nest, because it has gay plumage, and has never been delineated, or deprive even a butterfly of its natural enjoyment, because it has the misfortune to be rare or beautiful (Jones, 1795).

This non-violent attitude towards all life-forms reminds us the dictum of Jainism and other sects in India. The taboo on dissection of human dead-bodies, the vegetarian nature of large number of Indians and the consideration of the whole natural world as a divine combination of all sorts of flora and fauna living in harmony—all are quite appropriate to the feelings of Sir William Jones. There were other reasons also. The zoological science was in infant stage at that time. Most of the European research journals of zoology began to be published in the early nineteenth century and even the *Journal of the Asiatic Society* had to wait for any worthy publications on Indian fauna till the year 1828. To the European adventurers the animal world was less commercially important than the plant kingdom. The herb, weed, flower, fruit, wood, etc. are very useful as medicine, spice, dye, and structural set-up. No such useful applications of animals have been found at the early stage of the development of zoological science.

The first attempt on behalf of East India Company to set-up a zoological garden at Barrackpore near Calcutta came in reality in 1800. But the venture could not be continued for the lack of official support. The first recognizable zoological study was commenced by Bryan H. Hodgson. He worked in Nepal Residency at Kathmandu for over twenty years from 1823 and studied thoroughly the birds and mammals of Nepal, Sikim and Tibet. Hodgson published in the

Asiatic Researches and in the Journal of Asiatic Society no less than ninety papers (Chaudhury, 1956). Another person in the British army in India, Lt. S. R. Tickell took ornithology as his passion. He studied scientifically different birds, their eggs, nests and made a descriptive list of Indian birds since early thirties.

At this time some changes were going on in the Asiatic Society. Earlier, i.e., in 1814 the Asiatic Society resolved that a museum be formed with their collections of ancient relics, coins, plant specimens, minerals, fossils, animal remains. The museum was made of two divisions, one as a collection of archaeological, ethnological and technical materials and the other was a collection of geological and zoological materials. Curators were appointed from time to time. In 1835 the Government of India resolved that a Museum of Economic Geology with coal and other mineral specimens be founded at Calcutta. Government asked the Asiatic Society to lend its support for the maintenance of government collections in the Museum of Economic Geology. The volume of museum-exhibits was so large and diversified that adequate qualified curators were required. The Court of Directors of the East India Company sanctioned Rs. 250 per mensem to the salary of the curator. Sir Edward Ryan, the President of the Asiatic Society forwarded the name of Dr. J. M'Clelland as the incumbent of the curator's post; Dr. M'Clelland was looking after the museum at that time. Dr. W B O' Shaughnessy, the General Secretary of the Society accepted the President's proposal and submitted it at the meeting of Society. Although the Society agreed to appoint him, Dr. M'Clelland declined the offer. So the question of searching an appropriate and qualified naturalist from 'home' came forward.³ Dr J Grant, the apothecary to the Honourable East India Company insisted for searching the curator in India.⁴

³ In the meeting of the Asiatic Society held on 5 Feb. 1840, the issue of the appointment of a curator was discussed. In a note

However, the Asiatic Society did not agree with Grant's proposal and requested Prof. H. H. Wilson, the Society's agent at London to search an appropriate person capable to carry on the duties of a whole-time curator. Prof. Wilson favoured Edward Blyth, a young zoologist of Zoological Society, London for the purpose and recommended his name to Sir. E Ryan. The meeting of the society held on 4 Nov. 1840 agreed to appoint Mr. Blyth.⁵ On 2 June 1841 the Society received a letter from Mr. E Blyth apprising conclusion of an arrangement for his passage to India per 'Larkins'. The Society had to make an advance for his outfit and passage (*JASB* 10, Pt. I, 1841, p.500).

Blyth arrived at Calcutta in September 1841. At a special meeting of the Committee of Papers on 24 Sept. 1841 a letter from H. Torrens, the secretary of the Asiatic Society was written to E Blyth mentioning the terms and conditions of his service. In answer Blyth wrote a letter agreeing all the conditions (*JASB* 10, Pt. II, 1841, p. 755).

A report on the museum for September was placed by Mr. Piddington in the monthly meeting on 6 October 1841 (*JASB*, 10, Pt. II, 1841, pp. 836-842). The title of the report was 'Animal

Kingdom'. In the meeting Blyth was introduced to all members of the Asiatic Society. Blyth's original paper on species of true stag was published firstly in the *Journal of the Asiatic Society* in an earlier number (*JASB*, 10, Pt. II, 1841, pp. 736-750).

2. EARLY LIFE OF EDWARD BLYTH

The family background of Edward Blyth is not known to us except scanty references found in the obituary-type of writing of Arthur Grote (1875). Edward Blyth was born in London on 23 December 1810. His parents were Clara Blyth and Catharine Blyth. Blyth's father died on 1820 leaving four children, Edward being the eldest. Clara Blyth had a clothier establishment at London, but that could lend little support to the family. The widow tried hard to educate her children. Though Edward had an unusual memory and made progress in his books, the school reported him as of 'truant habits', because he was frequently discovered in the woods around the school. At the age of fifteen Edward left the school and went to another institution to study chemistry, but here also he failed to continue. His overenthusiasm for natural history ultimately resulted a young man having no formal education required for a job.

submitted by Sir Edward Ryan on 25 January 1840 he stated, "...I would for the purpose that the office of curator be offered, in the first instance, to Dr.M'Clelland, who was so kindly, for the time past, discharged the duties of curator without salary." W. B. O'Shaughnessy accepted the proposal in his note on 26 January 1840. His note concluded, "...I take the liberty of expressing my concurrence in the opinions of the President, and at the same time my hope, that Dr.M'Clelland may be enabled to command sufficient leisure for the duties of the office. It is quite impossible at present to find a competent and available individual to fill Dr.M'Clelland's place....in the event of Dr.M'Clelland declining the curatorship on the terms allowed by the Honourable Court and under the stipulations of our President, the Committee of Papers address (through the President) an application to the proper scientific personages at home, requesting their selection and appointment of a competent naturalist for the office of curator...." But subsequently Dr.M'Clelland declined the offer. Dr.M'Clelland's note of 29 January 1840 recorded. "...because of a want of confidence in my fitness for an office so interesting and important as our curatorship is now likely to become, that I cannot enter into any engagements as to periodical reports, or hours of attendance." It was recorded in the Proceedings that the Society required at least two hours service daily at the museum and regular monthly report of the museum to the Committee Papers. *JASB* 8, 1839, 961.

⁴ Grant's note was recorded in a meeting held on 15 Feb. 1840. The note was : "...In conclusion, as far as preferable to the plan of sending in three months to Europe for a curator, and procuring one who after his arrival in India would very likely become discontented at finding himself tied down for five years upon a salary which may sound imposing in Europe, but would be only a pittance for a man of education in India, and scarcely upon at par with the pay of some mechanics, I would prefer closing for a twelve months with Dr.M'Clelland, or with any other qualified gentleman in India, to whom such a limited salary might be an object—should the conditions of offering the situation to the former be such as to make him decline it." *JASB*, 8, 1839, 1063.

⁵ The meeting held on 4 Nov. 1840 and the Proceedings was recorded in *JASB*, 9, Pt. II, 1840, 726.

As a result Edward began a druggist's business at Tooting near London. But the business failed due to little personal attention given by Blyth. He was fully involved in zoology. "Never", says his sister, "was any youth more industrious; up at three or four in the morning, reading, making notes, sketching bones, colouring maps, stuffing birds by the hundreds, collecting butterflies and beetles—teaching himself German sufficiently to translate it readily, singing always merrily at intervals"(Grote, 1875, p. iv). Blyth could not find any employment and he spend pastime in Zoological Society and British Museum.

Here in the British Museum an incident occurred that introduced Blyth to Charles Darwin. In 21 Feb. 1838, John George Children of British Museum wrote a letter to Charles Darwin stating that Mr. Edward Blyth, a regular visitor to the Museum complained about a misbehaviour of Mr. Geo. R. Gray, an assistant in the zoology department. As Mr. Darwin occasionally went to the department for consultation the collections and knew Mr. Gray well, it could be proper if Mr. Darwin inform whether he had found the general tenor of Mr. Gray's conduct courteous, or otherwise(Burkhardt and Smith, 1991, p. 467). Though by that time Blyth had published several papers on British zoology, but it was not clear whether Darwin knew Blyth before receiving the letter. Darwin by that time had completed his global tour as a naturalist in H. M. S. Beagle and was busy in examining the collected materials.

Blyth was a contributor to both J. C. Loudon and E. Charlesworth's '*Magazine of Natural History*'. The magazine started to be published from 1828 under the title '*Magazine of Natural History and Journal of Zoology, Botany, Mineralogy, Geology and Meteorology*'

at the initiative of J. C. Loudon. Soon it turned to *Magazine of Natural History* under the guidance of E. Charlesworth. The first paper of Blyth was published in *Magazine of Natural History* of 1833. The paper was a reaction on an earlier publication of Rev. L. Jenyns (Blyth, 1833, p.485) on bird's classification. In the same year he published a short communication on an interesting little animal in England, namely water shrew (Blyth,1833, p.512).Four such short communications on birds, amphibians, reptiles were published in the same year. ⁶

The year 1834 was very productive year for Blyth. He published a note in the *Magazine of Natural History* on crossing and lengthening in the mandibles of birds especially in captivity when excess nutrients were given to them. The next big paper was on arrival of the British summer birds. He also wrote an article on songs of the Bramble Finch, the Mountain Linnet and the Tree Sparrow in the same volume[Blyth, 7(1834) p. 58, 338, 487].

Blyth read a paper on the osteology of the great Auk (*Alca impennis*) at a meeting of Zoological Society, London and published the paper in the *Proceedings* of 1837 (Blyth, Pt. V, 1837, p.122). He observed distinctive characters of Auks and Penguins. The most important paper published by Blyth during his earlier career was 'An Attempt to classify the 'Varieties' of Animals, with Observations on the Marked Seasonal and other Changes which Naturally Take Place at Various British Species and which do not Constitute Varieties' in the *Magazine of Natural History* of 1835 [Blyth, 8(1835) p. 40]. Between 1835 and 1837, Blyth had written three articles on variation in different species in the same journal. The other two articles were 'Seasonal and other

⁶ E. Blyth, *Mag. of Nat. Hist.* 6, 1833, 516, 523, 526, 527. Blyth recorded that a species of Thrush, the Redwing (*Turdus iliacus* L.) is a resident species in the extreme north of Scotland and in the isles and a regular winter visitor in South Britain. They have distinct notes in their music, thirty or forty of them were in habit of singing together. He again described Temminckl bird mentioning every detail of the bird. Blyth then informed that he found several specimens of Natterjack Toad in Tooting, Surrey. His communication on colour and appearance of young common viper (*viperavulgaris* Flem.) is also interesting.

External changes in Birds' [Blyth, 9(1836) p. 343] and 'Psychological Distinction between Man and other Animals [Blyth, 1(1837), p. 1, 7, 131]. The merit of these papers will be discussed in the later pages.

Blyth was interested in common bottlefit or muffin, a little bird. He wrote about the habits and peculiarities of this bird in the *Magazine* (Blyth, 1837, p. 199). His long article on seasonal and progressive changes of colour in the fur of mammals and feathers of birds were published in two parts [Blyth 1 (1837), p. 259, 300].

Blyth was very much productive in 1838. He altogether published ten papers in that year, seven in the *Magazine of Natural History* and three in the *Proceedings of Zoological Society*. All the papers except one were on the external features, behavioural patterns, habitat, migration of birds. In the *Magazine of Natural History*, he proposed a new arrangement of insessorial birds [Blyth, 2 (1838), p. 256, 314, 351, 420]. He described the adult plumage of the female smew and progressive changes of plumage in crossbill and linnet [Blyth, Pt VI (1838), p. 115; 2 (1838), p. 395]. He drew our attention to the peculiar structure of the feet of the *Trogonidae*, a type of bird [Blyth, Pt. VI, 1838, 20]. The migration of woodcocks, description of the groups of birds composing the order *Streptitores* were also written by him in the pages of *Magazine of Natural History* [Blyth, 2, (1838) p. 396, 589]. Blyth's exhibition of the skull of a Cumberland ox presenting a remarkable development of the horns of the beast was depicted in the pages of *Proceedings* [Blyth, Pt. VI, (1838) p. 120].

Analytical description of the groups of birds belonging to the order *streptitores* was recorded by Blyth in the *Magazine* in 1839 [Blyth, 3 (1839) p. 469]. But the most important lecture cum writing on the genus *Ovis* was published in the *Proceedings of the Zoological Society* of 1840 [Blyth, Pt. VIII (1840) p. 12]. *Ovis* is a member of goat-antelope subfamily. Grote wrote

a 'note below' in the relevant pages of obituary on Blyth,

....This was an *Amended List* of the species, of which he had enumerated nine in a summary Monograph in the previous February. This paper was reprinted in Taylor's *Magazine of Natural History* in 1841 and again with addition matter in *JASB*, (Vol X, Pt 2, p. 858)." Grote continued, "Here he describes 15 species of sheep, including the ten newly discovered o. poli from Pamir. At the same meeting he exhibited drawings and specimens of Yak, Kashmir Stag, Markhur, Himalayan Ibex, and other Indian ruminants, his remarks on which show the attention which he had already begun to give to the zoology of India (Grote, 1875, p. v).

Blyth exhibited his continuous interest on various animals of Central Asian, Tibetan Plateau. He published papers on "Exhibition of a pair of horns of the *Rass* of Pamir and also of the horns of a new species of wild sheep from Little Tibet in the papers of the '*Proceedings*' of 1840. In the same year we see another publication, i.e., "Exhibition of Drawings of various Quadrupeds, chiefly collected by Mr. Vigne in Little Tibet, and observation upon them [Blyth, Pt. VIII, (1840) p. 61, 79].

Thus, when Blyth joined the Asiatic Society he was already an established field-zoologist. His continuous unemployment in Britain resulted a big crisis. There were few institutions or academy where he could find a job. The prevailing economic depression made the situation more critical. Blyth's subsequent isolation from the British zoological circle for long twenty-two years and at the same time his close association with the Asian birds and animals in the Asian jungles moulded his scientific career in a different direction which ultimately elevated him at the level of Wallace and Darwin.

3. BLYTH IN THE ASIATIC SOCIETY

As a condition of service Blyth had to submit a monthly report on the functioning of his museum. This was a tedious job and for that Blyth

engaged much of his duty hours in preparing the report followed by collection of dead specimens of animals. The infrastructure of the museum was in a poor state, the financial support was also meagre. Specimen collectors were mainly the amateur hunters resided at distant places far away from Calcutta. Moreover, the communication system in the countryside was based either on through river-navigation or through carriages driven by draught-animals. Horses were also used.

The eastern suburb of Calcutta was an excellent marshy land frequently visited by migrating birds. The birds attracted Blyth as well. Blyth also availed short holidays in his favourite resorts at Khulna. The place being very near to Sunderbans was full of birds and games. The river cruise around Calcutta resumed his old habits of field observation.

The first report, i.e., the report for the month of October 1841 was duly published [Blyth, 10(1841) p. 917-929]. Before his submission of the report, Blyth published his maiden paper in the *Journal of the Asiatic Society* in the same year [Blyth, 10(1841) pp.736-750]. The title of the paper was "A General Review of the Species of True Stag, or Elaphoid form of *Cervus*, comprising those immediately related to the Red Deer of Europe."

Altogether sixty-four such reports were mentioned in Grote's obituary on Blyth (Grote, 1875, p.xvii-xxiv). In 1842 Blyth attached two appendices to his report describing the Asiatic drongos, quails, and another one treating mainly of reptilia. The 1843 report is appended a revision of all the previous reports, beginning with some interesting observations on Asiatic simiadae. The report published at the end of 1843 contains addenda, which cover the whole intervening period. It was very full and interesting, especially in its comments on collections from Darjeeling. In the following years Blyth described the animals and birds in the Society's collection including

mynahs, babblers, pangolins, hornbills, Indian and Tibetan foxes. In 1855 he reported on Mr. Ruppell's contributions from Abyssinia and mentioned Mr. Tickell's and Mr. Frith's discoveries of adjutants' nests. In the same year Blyth enumerated in a note the series of smaller squirrels in the Society's collection. There was a report that was mainly given to notices on Mr. Theobold's contributions of reptiles and other specimens from Tenasserim provinces. In the next year Blyth remarked in a note on the two supposed wild types of domestic cats in India. In 1858 Blyth described Dr. Liebig's contributions from Andaman islands and numerous siluroid and other fishes obtained in the neighbourhood of Calcutta. In the next year he further reported some observations on Andaman collection and submitted a note elucidating the series of flying squirrels. In 1860 Blyth reported on Mr. Swinhoe's contributions from Amoy and Formosa; on Cape specimens from Layard, and on further collections from the Andaman islands. In the next year reports were submitted on collections from China, the Phillipine islands, and Cape of Good Hope. Blyth also commented on stags and staghorns. This report further announced his new conclusions in regard to *Cervus affinis*. In 1862 Blyth reported a collection from British Burma, and enumerated in a note the ascertained species of sciuridae in that province. In the next year he reported a collection from Burma and Port Blair. In a note he enumerated the testudinata of the Burma province so far as then ascertained.

Blyth was not just an employee in the Asiatic Society. His activities were not arrested within the duties of a curator. He continued a live-contact with the field observers and sportsmen. His remarks on the various reports, "which reached him were just what were wanted by the field observers who supplied them. The active correspondence which he set on foot with these and with sportsmen, all more or less naturalists, throughout India, encouraged their useful pursuits, and brought him a large accession of

specimens(Grote, 1875, p.vi).”Robert Lynd, the secretary to a committee of Australian Museum, Sydney thanked Blyth for his exertions in opening out new channels of scientific intercourse with foreign institutions (*Proc. As. Soc.*, **15**, 1846, 51-53). Blyth’s contact and fame was so widespread in the South-East Asian countries that the Dutch authorities in Java seem to have about this time made him a very tempting offer for the post of natural historian in their establishment.

Blyth was a serious writer from the very beginning. Whatever he saw and investigated during his tenure in India he wrote either in the form of letter, note, communication or paper in various journals. While Blyth was on his passage to India for the first time, a fellow-traveller Lieut. Beagin upon being shown him some drawings of species of Gibbons, at once, in a figure of *Hylobates leucogenys* Ogilby, he recognized an animal which had met with, and examined, in the Malabar jungles [Blyth, IX (1841) p. 63]. These animals were not found on the Coromandel side. In the second communication after his arrival Blyth remarked in the same journal on various species of birds found in India and Europe [Blyth, X (1842) p. 93].

Blyth published fifty papers in the *Journal of the Asiatic Society* which contained all aspects of birds like cuckoo, pigeon etc. Behavioural and morphological studies of different mammals, such as wild sheep, lynx, bat, orang-utan, wild horses, wild asses, rats, mice, shrews etc. were reported in the journal. Catalogues of birds, mammals of Burma were prepared by Blyth and were duly published by the Society. Not only of Burma, his studies of birds, animals, fishes, reptiles of Malay, Arracan, Ceylon, Andaman-Nicobar islands, Philippine islands, South Africa, were published in the Journal of the Asiatic Society.

Edward Blyth was an excellent expert in ornithology. James A. Murray commented on him—

Mr. Blyth who is rightly called the Father of Indian Ornithology, was by far the most important contributor to our knowledge of the Birds of India. As the head of the Asiatic Society Museum, by intercourse and correspondence formed a large collection for the Society, and enriched the pages of the Society’s Journal with the results of his study. Thus he did more of the study of the birds of India than all previous writers. There can be no work on Indian ornithology without reference to his voluminous contributions..... (Murray, 1888)

During 1843-48 Blyth sent several papers for the *Annals of Natural History*. Here in 1843-44 he published a long paper on birds of Calcutta. *Calcutta Review* was a prestigious journal of British India. Here he published his essay on British birds in India (Blyth, 28, 1857, pp.129-195). Charles Darwin cited this article in *Natural Selection* (Darwin, 1975, p.311). Blyth regularly published papers in the *Ibis Journal* since 1859, and continued so even when he left the Asiatic Society. Though a prolific writer, Blyth contributed nothing in the *Calcutta Journal of Natural History*, the journal being commenced when he just reached India.

The most remarkable episode of Blyth’s life was his correspondence with Charles Darwin. Though most of the letters received by Blyth from Darwin were lost, however, Darwin preserved about forty letters from Blyth commencing in April 21, 1855. This was in response to a Darwin’s enquiry dated February 27, 1855. It appears that though Darwin was a ‘celebrity’ after his return from the global tour in “Beagle”, Darwin did not know Blyth personally except through his research papers from Calcutta. Darwin’s interest was in the variations in domesticated animals, including breeds introduced from other countries, and their origin and hybrids. Darwin made a list of questions on animal breeding to ask Blyth in his letter of Feb. 27, 1855 and Blyth subsequently answered the questions humbly and respectfully. Blyth was much gratified to learn that a subject in which he had always felt the deepest interest had been undertaken by one so competent to treat of

it in all its bearings (Burkhardt, and Smith, 1991, Vol 5, p.309).

Blyth regularly sent specimens from India and put Darwin in touch with others, such as Edgar Leopold Layard, whose first-hand knowledge of the plants and animals of particular regions proved extremely useful (Burkhardt, and Smith, 1991, Vol 5, p.xviii). These are the reasons for number of citations of Blyth in *Natural Selection, Origin and Variation*. Darwin opined about Blyth in his *Origin* by stating that “Mr. Blyth, whose opinion from his large and varied stores of knowledge, I should value more than that of almost anyone” (Darwin, 1859, 18). Darwin again cited Blyth in *Origin* in p. 163 and p. 253. Darwin recalled Blyth’s research on appearance of stripes on Kutch’s wild asses (p. 163). Darwin further mentioned, “In India, the cross-bred geese must be far more fertile; for I am assured by two eminently capable judges, namely Mr. Blyth and Capt. Hutton, that whole of flocks of these crossed geese are kept in various parts of the country, and as they are kept for profit, where neither parent species exists, they must certainly be highly fertile” (p. 253).

Alfred Wallace independently developed the theory of natural selection, survival of the fittest etc. at Malay at a time when Darwin worked on the same subject at Britain. Wallace came in contact with Darwin before the publication of Darwin’s famous book *Origin of Species*. In December 1857, when Darwin wrote a letter to Wallace he assured him on stating that Wallace’s paper in the *Annals* has been properly attended by two very good men, Sir C Lyell and Mr. E Blyth at Calcutta. It was Blyth who specially called Darwin’s attention to the paper (Burkhardt, and Smith, 1991, Vol 6, p.514).

After the death of Mrs. Blyth in 1857, Blyth was so shocked that he thought about a change in his life. Blyth requested Darwin to lend his support in favour of him, particularly for joining in ‘China Expedition’. Darwin wrote a letter to

William H. Sykes who served as Chairman of the East India Co. from 1856 to 1858, requesting him to appoint Blyth as a naturalist for the ‘China Expedition’ (Burkhardt, and Smith, 1991, Vol 7, p. 439). The ‘China Expedition’ was a second British expeditionary mission, being organized under James Bruce, Earl of Elgin, against the Chinese as a result of the emperor’s ‘failure’ in 1859 to ratify the treaty of Tientsin. It set out early in 1860. But the Company did not recruit any naturalist accompanying the expedition, and so the wish of Blyth was not fulfilled.

As Blyth was very much ill-paid in the Asiatic Society (his salary did not increase for twenty-two years!) he tried to earn by supplying animals, dead or alive to various agencies of Europe, as well as to the museums of different countries. Even the Asiatic Society bought some animal remains for its museum. During late ‘fifties, Blyth requested Darwin to join with him in the ‘animal trading enterprise’. However, Darwin did not respond favourably (Brandou-Jones, 1997, 145-178). But Darwin had a sympathetic mind to poor paid Blyth.

Blyth retired from the Asiatic Society in 1862 and returned to England. He continued to write on zoology and on the question of origin of species. His health further deteriorated with simultaneous attack from mental depression and alcoholism. At this time Darwin helped Blyth by influencing the authorities for the sanction of pension against his service in the Asiatic Society.

In his voluminous work *Descent of Man*, Darwin referred Blyth forty times. While writing about the sympathetic behaviour of animals with each other’s distress or danger, Darwin recorded that Blyth has informed him about Indian crows feeding two or three of their blind companions (Darwin, vol 1, 1871, p.77). The structure of the hands in species of *Hylobates* were so that their hands were converted into mere grasping hooks.

This was pointed out to Darwin by Blyth (Darwin, vol 1, 1871, p.140).

In the same volume Darwin wrote about the development of horns in the Koodoo and Eland antelopes. 'In several kind of antelopes the males alone are provided with horns, whilst in the greater number both sexes have horns. With respect to the period of development, Blyth informed Darwin that there lived at one time in the Zoological Garden a young Koodoo (*Ant. Strepsieeros*), in which species the male alone are horned, and the young of a closely-allied species, viz. the Eland (*Ant. Oreas*), in which both sexes are horned (Darwin, Vol 1, 1871, p. 289).' Ascertaining the sex of nest line bull finches is always an interesting study of bird watchers. Darwin acknowledged a paper of Blyth (1837, p.300) where he wrote on bird-fanciers who pull out a few feathers from a breast of nestling bull-finches, and from the head or neck of young gold pheasants, in order to ascertain their sex; for in the males these feathers are immediately replaced by coloured ones.

Darwin wrote on the pugnacity of the males of *Gallinula cristata*. Blyth informed him the males of *Gullicrex cristatus*, about one-third larger than the females are so pugnacious during the breeding season, that they are kept by the natives of Eastern Bengal for the sake of fighting (Darwin, Vol. II, 1871, p. 41). Blyth again informed Darwin about the presence of spurs in the female of *Euplocamus erythrophthalmus* (Darwin, Vol. II, 1871, p.46). After the observation of Blyth in Calcutta, Darwin wrote that Bengali baboos make the pretty little males of amadavat (estrelaamandeva) fight together by placing three small cages in a row, with a female in the middle; after a little time, the two males are turned loose, an immediately desparate battle ensues (Darwin, vol II, 1871, p.49).

Darwin's study on vocal organs of spoonbill was supplimented by Blyth. The spoonbill has its trachea convoluted into a figure of eight and yet the bird is mute. Blyth informed Darwin

that the convolutions are not constantly present, so that perhaps they are now tending towards abortion (Darwin, Vol. II, 1871, p.59).

Darwin acknowledged a paper of Blyth in (1867, p.32) in which the moulting of *Anthus* was discussed. Some of the splendidly-coloured honey-suckers of India and some sub-genera of obscurely coloured pipits (*Anthus*) have a double, whilst others have only a single annual moult.

Darwin again acknowledged a work of Blyth (Darwin, Vol II, 1871, p.126) on Indian honey buzzard. In Bengal the Honey buzzard (*Pernis Cristata*) has either a small rudimental crest on its head, or none at all; so slight a difference however would not have been worth notice, had not this same species possessed in Southern India "a well-marked occipital crest formed of several graduated feathers." Darwin heard from Blyth about many hornbills (*Buceros*), the males of which have intense crimson, the females white eyes (Darwin, Vol II, 1871, p.129).

Darwin wrote in the *Descent* stating that Blyth informed him that the females of *Oriolus melanocephalus* and some allied species, when sufficiently mature to breed, differ considerably in plumage from the adult males, but after the second or third moults they differ only in their beaks having a slight greenish tinge (Darwin, Vol II, 1871, p. 179). Regarding horns of Bovine animals, Blyth remarked, "In most of the wild bovine animals the horns are both longer and thicker in the bull than in the cow, and in the cow-benteng (*Bos Sondaicus*) the horns are remarkably small and inclined much backwards. In the domestic races of cattle, both the humped and humpless types, the horns are short and thick in the bull, longer and more slender in the cow and ox, and in the Indian buffalo, they are shorter & thicker in the bull, longer and more slender in the cow. In the wild gaour (*B. gaurus*) the horns are mostly both longer and thicker in the bull than in the cow (Darwin, Vol II, 1871, p. 247)."

Darwin's statement on the voice of the gibbons is very interesting (Darwin, Vol II, 1871, p.276). The male gorilla has a tremendous voice. The gibbons rank amongst the noisiest of monkeys and the Sumatra species (*Hylobates syndactylus*) is also furnished with a laryngeal sack; but Blyth, who had the opportunities for observation does not believe that the male is more noisy than the female. Hence these latter monkeys probably use their voices as a mutual call; and this is certainly the case with some quadrupeds, for instance with the beaver.

Blyth informed Darwin about the change of colour of antelopebenzoartica (Darwin, Vol II, 1871, p. 288). In the Indian Black buck (*A. bezoartica*), which belongs to a tribe of antelopes, the male is very dark, almost black; whilst the hornless female is fawn-coloured. Blyth informed an exactly parallel series of facts as with the *Portexpicta*, namely in the male periodically changing colour during the breeding season, in the effect of emasculation on this change, and in the young of both sexes being undistinguishable from each other.

4. BLYTH CAME BACK TO ENGLAND

Blyth retired prematurely in 1862 due to ill-health and came back to England. The Society passed a resolution unanimously praising the service of Blyth towards the Society. The resolution runs as—

On the eve of transferring the zoological collections of the Society to Government, to form the nucleus of an Imperial Museum of Natural History, the Society wishes to record its sense of the important services rendered by its curator, Mr. Blyth, in the formation of those collections. In the period of twenty-two years during which Mr. Blyth was Curator of the Society's Museum, he has formed a large and valuable series of specimens richly illustrative of the ornithology of India and the Burmese Peninsula, and has added largely to the Mammalian and other vertebrate collections of the Museum; while by his numerous descriptive papers and catalogues of the Museum specimens,

he has made the materials thus amassed by him subservient to zoological science at large, and especially valuable to those engaged in the study of the vertebrate fauna of India and its adjoining countries (*J.A.S.B.*, 33, 1864, p. 582).

Blyth's love and passion for zoology continued for the rest of his life. At this stage Blyth was an experienced biologist and had deep understanding on wild and domestic animals including birds of India and other Asian countries. Blyth continued his publications in the *Proceedings of Zoological Society* and in the *Ibis* journal. Among other papers he published in the *Proceedings* a synoptical list of the species of *Felis* inhabiting in Indian region. Among the publications in the *Ibis* between 1859-1872, apart from some letters and notes, a catalogue of birds in India with remarks on their geographical distribution was most important.

Blyth published a worthwhile paper in *Nature* in 1871 (no 3, pp.427-429). The title of the paper was : "A Suggested New Division of the Earth into Zoological Regions.". Blyth identified India including Madagascar, Malay as a division of zoological specimens. His statement in this regard was like this—

It seems now to be generally agreed among zoologists, who are specially conversant with the fauna of India that the 'Indian Region' of Dr.Sclater and others can no longer be regarded as a genuine or natural zoological division of the globe, and that India properly so called (from the Himalaya to the sea) is rather a border territory where different zoological regions meet and are variously interposed at the same time blending as a matter of course, to some extent.

In the opinion of Blyth, the Indian subcontinent is a melting pot of different zoological varieties and their evolution, just like assimilation of different human races and cultures.

5. BLYTH'S WORK ON NATURAL SELECTION

It has been stated earlier that Blyth had published three papers on Natural Selection in

the *Magazine of Natural History*. In one of such paper Blyth wrote

It is a general law of nature for all creatures to propagate the like of themselves and this extends even to the most trivial minutiae, to the slightest individual peculiarities; and thus, among ourselves, we see a family likeness transmitted from generation to generation. When two animals are matched together, each remarkable for a certain given peculiarity, no matter how trivial, there is also a decided tendency in nature for that peculiarity to *increase*, and if they produce of these animals be set apart, and only those in which the same peculiarity is most apparent, be selected to breed from, the next generation will possess it in a still *more* remarkable degree; and so on, till at length the variety I designate a *breed*, is formed, which may be very unlike the original type (Blyth, 1835, pp.45-46).

Blyth incorporated all about variation, natural selection, inheritance, survival of fittest etc. in his 1835 paper. In this paper he recognized the main principle of natural selection and its application to artificial selection or breeding and showed his understanding of heredity and sexual selection. However, he took an anti-revolutionary path by stating—

In a large herd of cattle, the strongest bull drives from him all the younger and weaker individuals of his own sex, and remains sole master of the herd; so that all the young which are produced must have had their origin from one which possessed the maximum of power and physical strength, and which, consequently, in the struggle for existence, was the best able to maintain his ground, and defend himself from every enemy.

In the like manner, among animals which procure their food by means of their agility, strength, or delicacy of sense, the one best organized must always obtain the greatest quantity; and must therefore, become physically the strongest, and be thus enabled, by routing its opponents, to transmit its superior qualities to a greater number of offspring.

The same law, therefore, which was intended by Providence to keep up the typical qualities of a species, can be easily converted by man into a means of raising different varieties; but it is also

clear that, if man did not keep up those breeds by regulating the sexual intercourse, they would all naturally soon revert to the original type (Blyth, 1835, p.46).

Blyth looked at the theory of natural selection as a tool of conservation of the best variety of the breed rather than advancement as imagined by Darwin. By stating “Providence to keep up the typical qualities of a species”, he uphold the so-called ‘conservation force which helps to maintain stability in living things and prevent change among them’ (Schwartz, 1974, p.303). Blyth was a creationist in a sense. Charles Lyell, the noted geologist, published his second volume of *Principles of Geology* in 1832 where he wrote about the “struggle of existence, ecological balance, and the extinction of species, principle of natural selection by which the extinction was brought about (Darwin’s Notebooks, Part I, p.33).” Lyell, Blyth and many others have been involved in the development of the theory of natural selection, but none of them could correctly deduce the theory of evolution. In 1835 Blyth was a little experienced naturalist having knowledge on birds and mammals of British islands only. The varieties of living species in the different continents as mostly observed by Darwin could not be imagined by Blyth. Though subsequently Blyth came across with the diverse animals in India, he discontinued the study on natural selection by that time and made himself engaged in taxonomical studies.

However, Blyth’s so-called priority as ‘a founder of theory of evolution’ was first noticed by H D Geldart, a British naturalist when he wrote a paper on this subject twenty years after the publication of *Origin* (Geldart, 1879, pp.38-46). Geldart observed that Blyth’s 1835 paper was practically unnoticed, even by his biographer Grote Geldart noticed Blyth’s failure to follow up his earlier studies on natural selection when he worked in India, a country of biodiversity. The matter ended there and again surfaced out in 1911

when H M Vickers published a paper in *Nature* (Vickers, 1911, pp. 510-511). He submitted—

Though Blyth seems to have recognized the principles of natural selection, he fails in its true application in that he regards his “principle” as operating for the conservation rather than the progression of the type, whereas the two really go hand in hand, the one being a complement of the other in the successive stages of evolution (Vickers, 1911, pp. 510-511).

That Blyth’s paper made any influence over Darwin was ignored by both Geldart and Vickers. After a gap of about half a century, Loren Eiseley came in the scene and published a paper on the subject (Eiseley, 1959, pp.94-158). He tried to unearth the relation between Blyth and Darwin. Eiseley also recognized that Blyth ‘failed to see that natural selection was a potentially liberalizing rather than conservative factor in life’. As per Eiseley, this happened due to the fact that Blyth was not a man of means, could not travel and thus is handicapped. Stephen J Gould, Ernst Mayr and T Dobzhansky accepted Eiseley’s view that Blyth’s contention of natural selection as a cause of stability, of a ‘perfect’ species and at the same time as a cause of abolition of an ‘imperfect’ species. This was not exactly the view of Darwin who saw the formation of a newer species through natural selection.

Darwin evaluated Blyth as a brilliant taxonomist and a hardy field observer. After his arrival in England at the end of Beagle-voyage, Darwin came across with the 1837 paper of Blyth in the *Magazine of Natural History* (Schwartz, 1974, p.315) and noted his comments in the note book as follows—

Study Mr. Blyth’s papers on Instinct—His distinction between reason & instinct very just; but these faculties being viewed as replacing each other it is hiatus & not saltus [Darwin’s Notebooks, Part 2, 106 (Notebook II, 198)].

Blyth being essentially a non-evolutionist Darwin did not give much importance to this paper.

After completion of his work on natural selection Darwin wrote a letter to the Reverend Baden Powell in which he denied acknowledgement to anyone including Blyth.

No educated person, not even the most ignorant, could suppose I mean to arrogate to myself the origination of the doctrine that species had not been independently created. The only novelty in my work is the attempt to explain how species became modified, and to a certain extent how the theory of descent explains certain large classes of facts; and in these respects I received no assistance from my predecessors (de Beer, 1959, pp.52-53).

Blyth had no complain against Darwin. He wholeheartedly supported the theory of evolution and wrote in favour of it in India and in England. Darwin sent him a copy of *Origin*. Blyth discussed about the book in a meeting of the Asiatic Society (*Proc. As. Soc. of Bengal*, 29, 1860, pp.436-437). In reference to a review of the book the reviewer made comments on Blyth in the following language—

...Nor has our eastern claim to a close connection with this new natural history theory ceased here, for Mr. Blyth another distinguished oriental naturalist, has been for years a co-labourer with Mr. Darwin in this very field of enquiry, and is spoken of by that author in several parts of his work in terms of praise and graceful acknowledgement which, however gratifying, cannot add to the well earned high European reputation of the curator of the Asiatic Society’s Museum (*Calcutta Review*, 35, 1860, pp.64-88).

This opinion is sufficient for the evaluation of a naturalist who spent so many years in Calcutta in a very difficult environment.

BIBLIOGRAPHY

- Beddall, Barbara G. Wallace. Darwin and Edward Blyth: Further Notes on the Development of Evolution Theory, *Journal of the Hist. of Biology*, 5.1(1972): 153-158
- Blyth, E. ‘Consideration Pertaining to Classification in

- relations to the Essay (p. 385-390) of the Rev. L. Jenyns on the subject, *Mag. Nat. Hist.*, 6 (1833):485.
- Blyth, E. The Water Shrew (*Sorex fodiens* L.), *Mag. Nat. Hist.*, 6 (1833):512.
- Blyth, E. *Mag. of Nat. Hist.*, 1 (1837):1, 7, 199, 259, 300; 2 (1838): 256, 314, 351, 395, 396, 589, 420; 3 (1839):469; 7 (1834): 58, 338, 487; 8 (1835):40; 45, 46, 9 (1836):343
- Blyth, E. *Proc. Zool. Soc.* V(1837):122; VI (1838): 20, 115; 120, 61, VIII(1840):12; 79, IX(1841):63; X(1842):93
- Blyth, E. *Calcutta Review*, 28(1857): 129-195. 35 (1860), 64, 88.
- Blyth, E., *JASB*, 10, (1841), 736-750, 917-929.
- Brandon-Jones, Christine. Charles Darwin and the Repugnant Curators, *Annals of Science*, 53 (1996): 501-510
- Brandon-Jones, Christine. Edward Blyth, Charles Darwin and the Animal Trade in Nineteenth Century India and Britain, *Hist. of Biology*, 30 (1997):145-178
- Burkhardt, F. and Smith, S. (eds.), *The Correspondence of Charles Darwin*, Cambridge Univ. Press, 1991, Vol. 7, 467.
- Chaudhury S. (ed.), *Index to the Publications of the Asiatic Societies 1788-1953*, Asiatic Society, Calcutta, 1956.
- Darwin C. *Natural Selection*, Cambridge Univ. Press, 197, p.311.
- Darwin, C. *On the Origin of Species*, John Murray, London, 1859, p.18.
- Darwin C. *The Descent of Man*, Vol I, II, John Murray, London, 1871.
- Dobzhansky, T. Blyth, Darwin and Natural Selection, *The American Naturalist*, 93(870), (1959):204-206
- de Beer, Sir Gavin. Some Unpublished Letters of Charles Darwin, *Notes and Records of the Royal Society of London*, 14 (1959):52-53
- Eiseley, Loren, Charles Darwin. Edward Blyth, and the Theory of Natural Selection, *Proc. Am. Phil. Soc.*, 103 (1959):94-158
- Eiseley, L. *Darwin and the Mysterious Mr. X*, Dutton, New York, 1979.
- Geldart, H. D. Notes on the Life & Writings of Edward Blyth, *Norfolk and Norwich Naturalists Society Transactions*, 3 (1879):38-46.
- Gould, John. *Trochalopteron blythii*, *Birds of Asia*, pt XXVI, Vol 3, London.
- Grote, Arthur. Introduction, being a memoir of the late Mr. Edward Blyth, *JASB*, extra no. 44 (1875)IV—XXIV.
- Joel S. Schwartz. Charles Darwin's Debt to Malthus and Edward Blyth, *Journal of the History of Biology*, 7.2 (1974):301-318
- Jones, Sir William. Tenth Anniversary Discourse in *Asiatic Researches*, Vol IV, 1795.
- Journal of Asiatic Society of Bengal*, 10, pt. I, II, 1841
- Martin, Edward A. Edward Blyth and the Theory of Natural Selection, *Nature*, 86 (9 March, 1911):45
- Murray, James A. *The Avifauna of British India and its Dependencies*, Truebner, Vol. I, 1888.
- Schwartz, Joel S. Charles Darwin's Debt to Malthus and Edward Blyth, *Journal of the History of Biology*, 7.2 (1974): 301-318
- Vickers, H. M. An Apparently Hitherto Unnoticed Anticipation of the Theory of Natural Selection, *Nature*, 85 (1911):510-511.
- Willnot, James K. Edward Blyth: Creationist or Just Another Misinterpreted Scientist?, *Report of Nat. Center of Sc. Ed.*, 29.5, (2009):36-37;