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CATALOGUE OF
MAMMALS AND BIRDS
OF BURMA.

BY THE LATE

E. BLYTH,

C.M.Z.S.; HON. M.B.O.U.; HON. M. ASIAT. SOC. BENGAL; CORR. M. ROY. ACADEMY
OF TURIN, OF ROY. NORWEGIAN, AND OF BATAVIAN SOCIETY OF SCIENCES;
CORR. M. ACAD. NAT. SCIENCES OF PHILADELPHIA, AND NAT.
HIST. SOC. OF THE MOSELLE DEPARTMENT.

WITH A MEMOIR, AND PORTRAIT OF THE AUTHOR.



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INTRODUCTION.

The Catalogues which follow occupied the late Mr. Blyth during the last three years of his life. Sir A. Phayre, K.C.S.I., now Governor of Mauritius, had requested him to undertake a sketch of the Natural History of Burma, which should form a chapter in a work on that country then under preparation. The MS. when obtained from Miss Blyth, after her brother's death, proved to constitute a more elaborate paper than Sir Arthur's purpose required. Blyth, as was his wont, had gone into the subject *con amore*, and had poured out all he knew of the Mammal and Avi-fauna of Burma. An Introductory Note, apparently not quite completed, accompanied the Catalogues, and reserving this as sufficient probably for his object, Sir Arthur handed over the rest of the MS. to me, suggesting that the pages of this Journal would be the most appropriate place for such a paper.

This suggestion was one in which I cordially concurred; but the late Dr. Stoliczka, the able editor of Part II. of the Journal, was far away in Kashgar, and Dr. Anderson, of the Indian Museum, was in England. There might be a difficulty, in their absence, in passing this roughly written MS. through the press in Calcutta. Here, on the contrary, the most competent editorial aid offered; and having received the kindest assurances from Lord Walden, Dr. Anderson, and Dr. Dobson, I addressed the President of the Society, and proposed that the Catalogues should be published in London. This proposal was at once assented to, with a due expression of thanks on the part of the Council of the Society, both to Sir A. Phayre and to the gentlemen just named, whose respective shares in this publication will be explained in the sequel.

More than one obituary notice of Blyth and his scientific labours, by competent and kindly pens, has already appeared in the columns of those Journals to which he had been in the habit of contributing. This seems

a fitting place for collecting in a brief memoir such particulars as are obtainable of his early life, and such as I can myself supply of his long career in our Society's service. My personal acquaintance with him commenced on my return to India from furlough in 1848. He had then been Curator of our Museum for seven years, and my official connexion with the Society, combined with a taste for his pursuits, brought me into frequent and close relations with him. Of the incidents of his pre-Indian life some knowledge has been obtained from his sister, who has kindly given me access to such of his letters as are in her possession.

The carbon print which accompanies this memoir has been prepared by the Autotype Company from a photograph taken of Blyth when he visited Dublin some ten years ago. It has been kindly contributed to me by Miss Blyth and her relative Mr. R. Loder, of High Beeches, Crawley, Sussex.

Edward Blyth was born in London on the 23rd December, 1810. His father was of a Norfolk family, and from him the son appears to have inherited both his taste for nature and the retentive memory for which he was so remarkable. Blyth's father died in 1820, leaving four children, whose care and education now devolved on the widow, a Hampshire lady, who at once sent Edward, the eldest boy, to Dr. Fennell's school at Wimbledon. Here the boy seems to have made unusual progress in his books, but the school reports describe him as of truant habits, and as being frequently found in the woods. He left school in 1825, and his mother seems at first to have intended him for an University career, and ultimately for the Church, but at Dr. Fennell's suggestion she sent her son to London to study chemistry under Mr. Keating, of St. Paul's Churchyard. He did not, however, long persevere in this study, being dissatisfied with his instructor's mode of teaching. His enthusiasm for Natural History pursuits disinclined him for any ordinary employment, and on coming of age he embarked the little means he had in a druggist's business at Tooting. To this he seems to have given little personal attention. The management of the business was left to another, while Blyth devoted all his time to the study which engrossed his thoughts. "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 hundred, collecting butterflies, and beetles—teaching himself German sufficiently to translate it readily, singing always merrily at intervals." He took a room in Pall Mall, to have readier access to books, and passed much of his time in the British Museum, in which, or in some kindred institution, he tried hard to find employment.

Naturally the Tooting business did not thrive under such fitful manage-

ment. Blyth soon found himself in serious difficulties; such literary work as offered itself in his own special line of study supplied him with but precarious means. In the Introduction to his edition of White's 'Selborne,' which bears date from Lower Tooting, 1836, he alludes to the anxieties which then surrounded him, though "his mind," he adds, "cleaves to its favourite pursuit in defiance of many obstacles and interruptions, and eagerly avails itself of every occasion to contribute a mite to the stock of general information." Young as he was, Blyth had at this time earned for himself a reputation as a diligent and accurate field observer, and he corresponded with many of the leading naturalists of the day. He seems to have been a contributor to both Loudon and Charlesworth's series of the Magazine of Natural History from 1833 till his departure for India, and in one of his papers of the volume for 1838 he proposed a new arrangement of Insessorial birds. Rennie enlisted him as a writer in the "Field Naturalist," and he was associated with Mudie, Johnston, and Westwood, in an illustrated translation of Cuvier, which was published by Orr and Co. in 1840. Blyth undertook the Mammals, Birds, and Reptiles in this work, adding much original matter of his own, which is inclosed within brackets. A new and enlarged edition of the work appeared in 1854, with important additions to the Molluscs and Fishes by Dr. Carpenter.

The Proceedings of the Zoological Society from 1837 to 1840 contain a few papers read by Blyth at their meetings. One of these, on the Osteology of the Great Auk, observes on the distinctive characters of Auks and Penguins. In another he draws attention to peculiarities in the structure of the feet of the Trogons. But the most important of these contributions was his Monograph of the genus "Ovis," read in 1840.* He here describes fifteen species of Sheep, including the then newly discovered *O. poli*, from Pamir. At the same meeting he exhibited drawings and specimens of the 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.

Just at this time our Society had obtained from the Court of Directors a grant for a paid Curator of its Museum, which had grown into a collection beyond what was manageable by the honorary office-bearers who had

* Proc. Zool. Soc., July 28. This was an "Amended List" of species, of which he had enumerated nine in a summary Monograph in the previous February. This paper was reprinted in Taylor's Mag. of Nat. Hist. in 1841, and again with additional matter in J.B.A.S. vol. x. pt. 2, p. 858.

hitherto looked after it. The labours of Hodgson, Cantor, M'Clelland, and others, had filled it with valuable Zoological specimens, which with important fossil and other contributions were falling into great disorder. Prof. H. H. Wilson, then our honorary agent in London, was asked to select a competent man to undertake the general charge of the Museum, and the appointment was offered to and accepted by Blyth, then in weak health, and professionally advised to seek a warmer climate. Provided with passage and outfit by the Court of Directors, the latter arrived in Calcutta in September, 1841. His letter to Mr. H. Torrens, published in our Society's Proceedings for that month (vide Journ. Vol. X. Pt. 2, p. 756), expresses the diffidence with which he entered on the charge of the Mineral Department of the Museum; but of this duty he was largely relieved in the following year on the appointment of Mr. Piddington to all the Departments of Economic Geology. He still retained the custody of the Palæontological specimens.

One of the duties impressed on him by our then President, Sir E. Ryan, was that of furnishing monthly reports at the Society's meetings; and in October, 1841, he accordingly submitted the first of that long series of useful reports which appear in our Proceedings with scarcely any intermission for the next twenty years. Each of the monthly issues of this Journal for the remainder of 1841 contains a paper by Blyth. In the first of these, 'A general review of the species of True Stag,' etc., he committed himself to an opinion, shared with him by Ogilby, regarding Hodgson's *Cervus affinis*, which, as Jerdon has pointed out (Mamm. p. 252), he did not recant till 1861.

Many of Blyth's reports fill from fifteen to twenty pages, and his remarks on the various contributions 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. He received in July, 1846, the thanks of the monthly meeting of our Society for his exertions "in opening out new channels of scientific intercourse."* He had already found it necessary to apply for assistance in his Museum duties, but the Society had not the means of supplementing the Government grant beyond the small allowance which they gave him for house rent. Had Blyth been less devoted to the special service in which he had engaged, there were not wanting to him opportunities of finding far more remunerative employment in other

* J.B.A.S. xv. p. 51.

quarters. The Dutch authorities in Java seem to have about this time made him a very tempting offer.

The Proceedings of the Zoological Society for 1841 and 1842 contain two letters from Blyth, of which one was written on the voyage out to India,* and the other shortly after his arrival.† The latter contained remarks on various species of birds found in India and Europe. Nothing from his pen appears in the *Calcutta Journal of Natural History*, of which the publication had just commenced when he reached India, and which was brought to a close in 1847. He found time, however, to send home several papers for the *Annals of Natural History* in 1844–48, as will be seen in the List appended to this Memoir, in which I have endeavoured to collect the titles of all his published writings.

The unpleasant episode in regard to the publication of the Burnes Zoological drawings with Dr. Lord's notes had occurred before I joined the Society. The materials, which consisted of certain wretched figures by a native artist, and some descriptions of already well-known species, the Afghanistan localities of which were alone new, had been made over to us by the Government before Blyth became our Curator. The lithographer's death had brought the work to a stand, and when inquiry was made in 1844, the notes which were to furnish the letterpress were not forthcoming. Blyth's explanation of his share in their disappearance will be found in our Proceedings of October, 1844.‡ This was followed by a controversy with Mr. Torrens, § then our Secretary; and the financial embarrassments of the Society soon afterwards necessitated the abandonment of the publication. Of the fourteen coloured copies of the completed plates, I possess one, and I quite agree with Blyth that their issue would have brought ridicule on the Society.

The heavy outlay incurred on this undertaking, and on the publication of Cantor's Chusan drawings, was unfortunately the cause, not only of the embarrassments just noticed, but of a temporary estrangement between the Philological and Physical classes of our members. Funds which had been assigned by the Government for furthering Oriental literature had no doubt been appropriated to other objects. Blyth came in for a share of this discontent on the part of the Orientalists, and some Naturalists also complained that he was enriching the Mammal and Bird departments of the Museum at the expense of those of the shells, fossils, and insects. The want, too, of a Catalogue of the collections had been long felt, and the

* P.Z.S. 1841, p. 63.

† *idem.* 1842, p. 93.

‡ J.B.A.S. xiii. pt. 2, p. 51.

§ *idem.* xiv. pt. 2, p. cvi.

Curator had been repeatedly urged to supply it. The Council refers to his delay in performing this duty in their Report* of 1848, while commending "his regularity of attendance and remarkable industry." His application for increased pay and a retiring pension was referred to the Society at large with the following guarded remarks:—"It must be admitted that for any scientific man capable of discharging the duties on which Mr. Blyth is employed, and of performing them with activity and zeal, for the advancement of science, etc., the [monthly] salary of 250 rupees is a very inadequate compensation. But the Council cannot but regard the present as an inauspicious period to address the Honourable Court in furtherance of any pecuniary claim. The diversion of the Oriental grant to so large an amount as has but lately been brought to notice, cannot be regarded with indifference by them, nor can it have disposed them to entertain with much favour any fresh demand on their munificence preferred by the Society." The application was then referred for report to the Natural History Section, and notwithstanding the stout struggle made on his behalf in the Section, their report was unfavourable to Blyth's claims, which were finally negatived at the July† meeting in 1848.

In the following year Blyth published his Catalogue of Birds, which had in fact long been ready for issue in a form which would have satisfied the Council. It had been constantly kept back for the Appendices, Addenda, and "Further Addenda," which disfigure the volume, and seriously detract from its value as a work of reference. This habitual reluctance of his to part with his compositions till he had embodied in them his latest gained information is conspicuous throughout his contributions, and it is in fact partly due to this habit that these Burman Catalogues form a posthumous publication.

Blyth availed himself of every opportunity which offered of escape from his closet studies to resume his early habits of field observation. Frequent mention will be found in his reports of the little excursions into the country which he thus made, and of the practical results obtained from them. The geniality of his disposition and the large store of general information at his command insured him a warm welcome in all quarters. One of his favourite resorts was Khulna, on the edge of the Jessore Sunderbuns, where the indigo factory of an intelligent and untiring observer‡ offered him a favourable station for field pursuits.

* J.B.A.S. xvii. pt. 1, p. 10.

† J.B.A.S. xvii. pt. 2, p. 122.

‡ Our common friend Robert Frith, whose name is of frequent occurrence in the Curator's reports.

Several contributions from Blyth on his special subject will be found in the pages of the different sporting Journals which have appeared in Calcutta. He was on the regular staff of the 'Indian Field.' In the 'India Sporting Review' he published a sketch of 'The Osteology of the Elephant,' and a series of papers on 'The Feline Animals of India.' For the 'Calcutta Review' he wrote an article on the 'Birds of India.' It gives the results of his latest experience on the subject of the communication made in 1842 to the Zoological Society, which has been noticed above, and shows that of 353 species of birds admitted by Yarrell into the English avifauna, no less than 140 are found in India.

In 1854 Blyth was married to Mrs. Hodges, a young widow whom he had known as Miss Sutton, and who had lately come out to join some relatives in India. This step on his part necessarily aggravated the embarrassments entailed on him by his inadequate income, and on completing his fourteenth year of service in 1855, he memorialized the Court of Directors for an increased salary and for a pension "after a certain number of years' service." In the second paragraph of his memorial he observes, "that however desirous the Asiatic Society might be of augmenting your memorialist's personal allowances, the ever-increasing demands on its income, consequent on the extension of its collections among other causes, altogether disables it from so doing." On this memorial being submitted to the meeting* of May, 1856, it was agreed to forward the document to Government, "with the expression of the high sense entertained by the Society of the value of Mr. Blyth's labours in the Department of Natural History, and of its hope that the memorial may be favourably considered by the Honourable Court."

The extract just given will show, in Blyth's own words, that he had no complaints to make of our Society's treatment of him. Mr. A. Hume, who seems to have first joined our Society in 1870, has gone somewhat out of his way in his 'Rough Notes'† to do justice to Blyth's merits as Curator, at the expense of older members. The language used is in Mr. Hume's characteristic style, and is as offensive as the charge brought against the Society is unjust. The same charge is implied in the use of the words "neglect and harshness" in the "In Memoriam" with which vol. ii. of 'Stray Feathers' opens, and which, with this exception, describes with much truth and feeling the life-long struggle in India, as at home, which Blyth's

* J. B. A. S. xxv. 237.

† See note to 'My Scrap Book or' Rough Notes on Indian Oology and Ornithology,' No. 1, p. 181.

scientific ardour supported him in maintaining against the most depressing obstacles.

That nothing came of this memorial is due probably in some measure to the movement which commenced in 1857 for transferring our collections to an Imperial Museum, but mainly to the great convulsion which shook our empire in that year. I find no record in our Proceedings of any reply having been made to our recommendation, and the negotiations for the foundation of the new museum were not resumed for some three years.

Blyth made a short tour in the N.W. Provinces in July, 1856. He spent some six weeks in Lucknow, Cawnpore, Allahabad, and Benares. Oude had just been annexed, and the sale of the Royal Menagerie at Lucknow had been determined on. The tigers were the finest caged specimens in the world, and to one who understood their value in the European market, the inducement to buy and ship the animals was irresistible. A German friend joined in the speculation, and found the necessary funds. Blyth was to do the rest, and as no competitors offered, he bought the bulk of the collection for a trifle. Eighteen magnificent tigers were sold at 20 rupees (£2) a head! Some casualties occurred on the passage down the river; but his collection, when exhibited in Calcutta, contained sixteen tigers, one leopard, one bear, two cheetas, three caracals, two rhinoceroses, and a giraffe, which carried a saddle and was daily ridden. Difficulties unfortunately occurred in finding ships for the transport of the animals, and their detention in Calcutta caused further casualties and heavy charges, which his partner would not face. The speculation collapsed, but one of the tigers which reached England realized £140.

In December, 1857, Blyth had the misfortune to lose his wife. His short married life had been of the happiest, and the blow fell heavily on him. His letters to his sister for the early months of 1858 are painful to read. The shock proved too much for him, and brought on a serious attack of illness; it threatened paralysis of the heart, and he seems to have been subject to partial returns of similar attacks for the rest of his life. His health too suffered much from the isolation imposed on him by his straitened means, and from want of proper exercise. Some distraction for his thoughts was luckily afforded at this time by the opening up of a new fauna in the Andaman Islands, which Dr. Mouatt had been sent to report on before their occupation as a penal settlement. To this Report Blyth contributed an interesting chapter on the Zoology of the Islands, so far as it was then known.

The China expedition of 1860 was considered both at home and in India a good opportunity for obtaining information regarding the natural history of

North China. Blyth's name was put forward as that of a naturalist readily available and eminently qualified for the post of naturalist to the expedition. Replying to Lord Canning's objections that scientific observations in a hostile country would have to be carried on at much personal risk, our Council,* while urging the importance of the mission in a scientific point of view, stated on Blyth's behalf that "he was quite willing to encounter the danger, whatever it might be." The application, however, failed: no naturalist was appointed. This result was to be regretted, as it affected Blyth personally, for his health was failing, and the sea-voyage, with the stimulus afforded by so interesting a mission, would have been most beneficial to him, and would probably have averted the utter breakdown which was now at hand. It is doubtful whether he was equal to the more laborious task which he offered to undertake in the following year, when the scientific expedition into Chinese Tartary was projected by the Government.

Blyth was a staunch adherent of Darwin's views, and an opportunity of thus declaring himself offered at our November meeting in 1860, when Mr. H. Blanford read his paper on the well-known work of Dr. Broun on the laws of development of organized beings. The value attached by Darwin to Blyth's observations is shown by the frequent reference made to them, more especially in his 'Animals and Plants under Domestication.' His first citation of Blyth in the latter work describes him as an "excellent authority," and the many quotations that follow in these interesting volumes show how carefully he read and noted all that fell from Blyth, even in his contributions to sporting journals.

In 1861 Blyth's health fairly gave way, and in July of that year a second memorial was submitted to Government† with a view to obtaining a reconsideration by the Secretary of State for India of his claims to a pension. Lord Elgin, the new Viceroy, took up the subject warmly, and pressed it on the attention of the Home authorities as a special case:‡ "the case," as he observed, "of a man of science who had devoted himself for a very small salary to duties in connexion with the Asiatic Society, a body aided by and closely identified with the Government of India, from which the public have derived great advantage." After describing Blyth as "the creator of the Natural History Museum, which has hitherto supplied the place of a public museum in the Metropolis of India, and which will probably soon be made over to Government as part of a national museum," and referring to the

* J. B. A. S. xxix. p. 82.

† J. B. A. S. xxxi. 60.

‡ *Idem.* xxxi. 430.

importance of Blyth's labours in zoology in maintaining and extending the character and standing of our Society, this dispatch concludes thus: "His Excellency in Council considers, therefore, that if under such circumstances Mr. Blyth should, after twenty years' service, be compelled to retire from ill health, brought on very much by his exertions in pursuit of science, it would not be creditable to the Government that he should be allowed to leave without any retiring pension."

Meanwhile, Blyth was only enabled to remain at his post by the facilities which the Council afforded him of making short successive visits to Burma. He was for some five months in that province, from which, and more especially from the Yonzalin River, he communicated several interesting letters. His camp life there agreed with him, and he had kind friends like Phayre, Fythe, and Tickell to associate with and take care of him. His return to Calcutta was always attended by a relapse, and the hot season of 1862 brought him to a state for which there was no alternative but instant departure for Europe. As yet, however, no orders had been received from home in regard to the pension. It was clear that for these it would not do to wait, and the Council* under the emergency gave Blyth a year's leave on full pay. He had hardly gone when the expected reply was received, and this, notwithstanding the Viceroy's strongly expressed opinion, proved† an unfavourable one. Eventually‡ a pension of £150 a year was conceded, owing, I believe, mainly to the untiring efforts made in London on Blyth's behalf by the late Sir P. Cautley and Dr. Falconer.

By the end of 1864 our Society's negotiations with the Government for the transfer of its collections to the Indian Museum had been brought to a successful close, and at the November meeting the following just tribute was paid to our late Curator in the form of a resolution, which, on the Council's proposition, was carried unanimously:—

"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 late 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 Council's action in anticipation of the vote of a meeting was cordially approved at our annual meeting of 1863, but was protested against as illegal by Mr. Oldham.

† J. B. A. S. xxxii. 32.

‡ J. B. A. S. xxxiii. 73.

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.†

Blyth was elected an Honorary Member of the Society in the following year. The Museum was now under a Board of Trustees, and a new Curator, better paid, and with all the prospective advantages of a Government official, had taken charge of it. Writing to me from Malvern, in June, 1865, Blyth says: "I had always a presentiment that my successor in the Museum would be more adequately remunerated, beginning with just double what I had after more than twenty years' work, with an additional £50 yearly, and house accommodation! How very much more could I have accomplished with such an income!" With this mild explosion he brushed off discontent, and strove to make the most of his small means. His letters to me, and these were frequent up to the time of my leaving India in 1868, were full of his own special subject; some of them are published in our Society's Proceedings.

In January, 1864, Blyth visited Dublin, where he read two papers before the Royal Irish Academy. The first of these was 'On the True Stags or Elaphine division of the genus *Cervus*,' and does not appear to have been printed *in extenso* in the Academy's Proceedings.‡ His other paper, 'On the Animal Inhabitants of Ancient Ireland,' was published at length in the Academy's Proceedings § of January 25th. What the extraordinary bones were which he exhibited at the meeting, and which he referred to as "probably Tibetan," was not explained in any of his letters.

At a meeting of the Geological Society of Dublin, he made some remarks on a paper of Professor Haughton's 'On Geological Epochs,' and expressed his concurrence in Dr. Carte's identification of the bones of the Polar Bear discovered in Lough Gur, in County Limerick. On further examination, however, these bones have been pronounced by Mr. Busk to be indistinguishable from those of *Ursus ferox*.

The question of zoological distribution will be found to have been treated by Blyth, in a paper which he contributed to 'Nature' in 1871

* Blyth's Catalogue of Mammalia was published in 1863, its last sheets being carried through the press by his friend Jerdon.

† J. B. A. S. xxxiii. 582.

‡ Vol. viii. Jan. 11, 1864, p. 458.

§ *Id. qu. sup.* p. 472.

|| Proceedings G. S. D. for January 13, 1864, Journ. p. 173.

(March 30). He had been led to consider it while drawing up the introductory chapter which was to preface these catalogues, for in a letter to me dated 15th July of that year he refers to this MS. as follows:—

“ I suppose that Phayre showed you my sketch of what I conceive to be the true regions and sub-regions of S. E. Asia, and I expected that he would have modified somewhat my notions with regard to the provinces into which I venture to divide the *Indo-Chinese sub-region*, but he seems to have assented to them altogether. Only yesterday I received the ‘Proceedings of the Asiatic Society’ for April and May last, and the ‘Journal of the Asiatic Society of Bengal,’ Part II., No. 1, 1871, and in p. 84 of the ‘Proceedings’ I find some remarks by Stoliczka which quite confirm my views, only that I think that, with regard to the extension of the Malayan fauna into India, he should rather have said *Southern* India, because the African affinities of Central and Northern India, inclusive of the Siwâlik Deposits, are of ancient date, as shown by the occurrence of *Bos namadicus* in Central India, which is barely separable from the European *B. primigenius* (a type of *Bos* which is elsewhere only known from Europe), and by the presence of giraffes and of antelopes of African type in the Siwâlik Deposits. I have such an enormous mass of valuable facts to deal with, that I gave over making them public in driblets at the meetings of the Zoological Society; and I have now time and undisturbed leisure to treat of them in a work which I am preparing on ‘The Origination of Species,’ a subject upon which I think I can throw some light.”*

As pointed out in a note, Blyth’s ‘Austral-Asian region’ is generally the same with Dr. Selater’s ‘Indian region,’ *minus* Hindustan proper, or the plains of Upper India east and south of the north-west desert—the Dukhun or table-land of the Peninsula with the intervening territory, inclusive of the Vindhyan Ghats—the Coromandel Coast and the low northern half of Ceylon—all of which Blyth places in his Ethiopian region. What remains of India after this large deduction Blyth distributes through three sub-regions, viz. the Himalayan, Indo-Chinese, and Cinghalese. India cannot, he argues, be treated as a natural zoological province: it is a border-land in which different zoological regions meet, and one, therefore, “of extraordinarily complex zoological affinities.” Burma of course falls within his Indo-Chinese sub-

* Among the papers left by Blyth is one headed ‘Origination of the Various Races of Man,’ which he may have intended to form part of the book here referred to. It contains nothing original, but brings together numerous points of resemblance and contrast observable in the several groups of the order Primates.

region, which extends southward as far as Penang and Province Wellesley, where his Malayan sub-region commences.

The interest which Blyth had always taken in the *Rhinoceros* group was revived by the safe arrival at the Zoological Gardens of the Chittagong individual, the *Ceratorhinus crossi* of the present Catalogue. In his paper contributed to the 'Annals' in 1872, he argues against Gray's assignment of this species to *Rhinoceros sumatrensis*, and in favour of its identity with the fine Tavey specimen shot by Col. Fytche, and figured in this Journal, vol. xxxi. p. 156. Blyth's conjecture that the Arakan Hills is one of the habitats of this species is borne out by the letter in which Capt. Lewin, the superintendent of the Hill Tracts of Chittagong, first reported to me in 1867 the capture of the animal.* After giving her measurements, which were then 6 feet from crown of head to root of tail, and 4 feet 2 inches in height, and otherwise minutely describing her horns, Capt. Lewin adds: "You are mistaken I think in supposing that she has come from the Tenasserim Provinces—the two-horned species is found in my hills. I have seen one alive, and several of my men have seen a dead one."

In the Journal of Travel and Natural History, No. 2,† of 1868, will be found a letter from Blyth in explanation of some remarks which he had made at the Zoological Society on the occasional shedding or loss by violence of rhinoceros' horns, followed by their renewal. In this he takes the opportunity of pointing out the tendency which some species have to develop a rudimentary horn on the forehead, and argues for the possible explanation in this manner of cases of three-horned rhinoceroses being reported by travellers.

The connexion which Blyth established, first with 'Land and Water,' and later with the 'Field,' gave him interesting literary occupation; and the 'Naturalist' columns of both these journals abound in scraps by 'Zoophilus,' which did real service to the advancement of scientific truth. No pen so ready as his to expose current fallacies or sensational announcements in works of travel of the results of loose and careless observations. Very many of his 'scraps' are worthy of being collected and preserved, for such use as we see they have been turned to by Mr. Darwin. These columns occasionally contained more elaborate papers, such as the series in the 'Field' for 1873, on 'Wild Animals dispersed by human agency,' and 'On the Gruidæ or Crane family.' This monograph, for such it amounts to, was

* The date of capture is erroneously given, both by Mr. Blyth and by Dr. Anderson in his cited communication to the Zoological Society.

† Page 130.

its writer's last utterance. He had long been ailing, and in the autumn of this year he became very ill, and went to Antwerp for a change. On his return he called on me, feeling, as he said, better, though complaining of great prostration. He seemed full of what he had seen in the Antwerp Zoological Garden, where he thought he had found another new species of Rhinoceros. This was our last interview. Though nursed by a tenderly-attached sister, his weakness increased, and he died of heart disease on the 27th of December, within a day or two of his 63rd birthday.

More competent authorities than I can pretend to be have done justice to the high intellectual powers which Blyth displayed from the outset of his career as a naturalist; to the wonderful capacity and accuracy of his memory, which, unassisted by any systematic notes, assimilated the facts once stored in it, and enabled him readily to refer to his authority for them; to his great power of generalization, and to the conscientious use which he made of it. Abundant proof of the high respect with which his opinions were always listened to, and of the careful consideration given to them even where they were not accepted, is to be found in the published works of his brother naturalists. No higher testimony to his habitual scientific caution need be adduced than that of Mr. Darwin, but it is equally borne by Jerdon throughout his published writings. Gould* refers to him as "one of the first zoologists of his time, and the founder of the study of that science in India." I confine myself here to putting on record the tribute of an old and intimate friend, to the excellent qualities of heart possessed by Blyth. The warmth and freshness of his feelings which first inspired him with the love of Nature clung to him through his chequered life, and kept him on good terms with the world, which punished him, as it is wont to do, for not learning more of its wisdom. Had he been a less imaginative and a more practical man, he must have been a prosperous one. Few men who have written so much have left in their writings so little that is bitter. No man that I have ever known was so free as he was from the spirit of intolerance; and the absence of this is a marked feature in all his controversial papers. All too that he knew was at the service of everybody. No one asking him for information asked in vain. Among the many pleasurable reminiscences of my own long residence in India, few are more agreeable than those which recall his frequent Sunday visits to me.

The Society are largely indebted to the three able Naturalists who have lent their aid to the publication of these Catalogues. That of the Mammalia, with the exception of the Bats, was revised by Dr. Anderson last

* 'Birds of Asia,' Pt. XXVI. *Trochalopteron blythii*.

year, before he was summoned to India to join the second expedition to Yunan. Dr. Dobson, of the Royal Victoria Hospital of Netley, has edited the Catalogue of the order *Chiroptera*, the study of which he has long specially cultivated. In both cases the notes and additions of the editors are inclosed within brackets, and bear their respective initials. One or two notes added by myself are signed 'Editor.' All unsigned notes and citations of references are those of the author of the Catalogues.

The Catalogue of Birds will be found, under Lord Walden's able and conscientious treatment, to be a complete list of the Burmese species, 660 in number, as ascertained to date. His editorial notes and additions, which embrace the latest information afforded by his fine collection, are inclosed in brackets, and largely enhance the value of the Catalogue. Blyth's MS., for the species enumerated in it, has been scrupulously adhered to, obvious errors of orthography having alone been corrected, and localities being added where the habitats were doubtful when he wrote. On this last point I quote Lord Walden's own words:

"The names of the localities added are given on the authority of Mr. Davison, Mr. Oates, Major Lloyd, Captain Feilden, and Lieutenant Ward-law Ramsay, whose initials will be found attached. My endeavour has been to include those localities which, while within the range, are not specified by Mr. Blyth. All Major Lloyd's and Lieutenant W. Ramsay's specimens and some of Captain Feilden's have been identified by me. Mr. Hume is responsible for the accurate identification of those obtained by Mr. Davison and Mr. Oates, and although that gentleman, in most cases, adopts the faulty nomenclature of Mr. G. R. Gray's Hand List, I believe I have succeeded in correctly interpreting his meaning."

A. GROTE.

LONDON, August 27, 1875.

List of Mr. Blyth's published papers in the Journal of the Asiatic Society of Bengal and other Journals, with the necessary references.

Curator's Reports, read at the Society's Monthly Meetings.

Report for September, 1841, read by his predecessor, Mr. Piddington, on the occasion of Mr. Blyth's first introduction to the meeting of the 6th October, X. 836.

Report for October, 1841, X. Pt. 2, 917.

„ November, 1841, X. Pt. 2, 936.

- Report for January, 1842, XI. Pt. 1, 95.
- „ February, 1842, XI. Pt. 1, 129.
- „ April, 1842, XI. Pt. 1, 444.
- „ June, 1842, XI. Pt. 1, 585.
- „ July, 1842, XI. Pt. 2, 788. The two Appendices to this Report monograph the Asiatic Drongos and Quails.
- „ August, 1842, XI. Pt. 2, 865. Treating mainly of Reptilia.
- „ September, 1842, XI. Pt. 2, 880.
- „ October, 1842, XI. Pt. 2, 969.
- „ November, 1842, XI. Pt. 2, 1202.
- „ February, 1843, XII. Pt. 1, 166. To which is appended a revision of all previous reports, beginning with some interesting observations on Asiatic Simiadæ.
- „ November, 1843, XII. Pt. 2, 925. This is entitled the “Monthly Report for December, 1842,” but it contains Addenda, which cover the whole intervening period. It is very full and interesting, especially in its comments on collections from Darjeeling.
- „ May, 1844, XIII. Pt. 1, 361. Further appendix to the above report for December, 1842. It describes the Mynahs and Babbblers.
- „ November, 1846, XV. p. xcix.
- „ February, 1847, XVI. Pt. 1, 209.
- „ March, 1847, XVI. Pt. 1, 385.
- „ April, 1847, XVI. Pt. 1, 502.
- „ May, 1847, XVI. Pt. 1, 603.
- „ June, 1847, XVI. Pt. 2, 725. Describing the Quadrumana in the Society’s Collection.
- „ July, 1847, XVI. Pt. 2, 863. Describes the Sciuridæ in the Society’s Collection, and gives Addenda to previous Reports.
- „ August, 1847, XVI. Pt. 2, 992. With Supplement. Describes the Hornbill group.
- „ December, 1847, XVI. Pt. 2, 1271. Remarks on the different species of Pangolins.
- „ January, 1848, XVII. Pt. 1, 82.
- „ March, 1848, XVII. Pt. 1, 247.
- „ April, May, and June, 1848, XVII. Pt. 1, 559.
- „ January, 1849, XVIII. Pt. 1, 80.
- „ June, 1850, XIX. 426.
- „ July, 1850, XIX. 490.
- „ September, 1850, XIX. 497.

- Report for October, 1850, XIX. 561.
- „ January, 1851, XX. 108. (Arrear Reports of 1849.)
- „ February, 1851, XX. 213.
- „ August, 1851, XX. 443.
- „ April, 1852, XXI. 341-358.
- „ May, 1852, XXI. 433.
- „ May, 1853, XXII. 408.
- „ September, 1853, XXII. 580.
- „ October, 1853, XXII. 589.
- „ February, 1854, XXIII. 210. Appends a short note to his paper on Orangutans in Vol. XXII.
- „ October, 1854, XXIII. 729. Describes in a note the series of Indian and Tibetan Foxes in the Society's Museum.
- „ February, 1855, XXIV. 178.
- „ March, 1855, XXIV. 187.
- „ April, 1855, XXIV. 252. Reports on Rüppell's contributions from Abyssinia, and mentions Tickell's and Frith's discoveries of Adjutants' nests.
- „ May, 1855, XXIV. 359.
- „ July, 1855, XXIV. 469. Enumerates in a note the series of smaller Squirrels in the Society's Collection.
- „ October, 1855, XXIV. 711. Is mainly given to notices of Theobald's contributions of Reptiles and other specimens from Tenasserim provinces.
- „ August, 1856, XXV. 439. Remarks in a note on the two supposed wild types of the Domestic Cats of India.
- „ May, 1857, XXVI. 238.
- „ July, 1857, XXVI. 284.
- „ October, 1857, XXVI. 314.
- „ December, 1857, XXVII. 81. Subjoins in a note a synopsis of the species of *Palæornis* with their synonyms.
- „ May, 1858, XXVII. 267. Describes Dr. Liebig's contributions from the Andaman Islands, and numerous Siluroid and other Fishes obtained in the neighbourhood of Calcutta.
- „ February to May, 1859, XXVIII. 271. Further observations on Andaman collections. A note elucidates the series of Flying Squirrels.
- „ September, 1859, XXVIII. 411. Reports on Tickell's contributions from Tenasserim.

- Report for March, 1860, XXIX. 87. Reports on Swinhoe's contributions from Amoy and Formosa; on Cape specimens from Layard; and on further collections from the Andaman Islands.
- „ April and May, 1860, XXIX. 447.
- „ May and June, 1860, XXX. 90. Reports on collections from China, the Philippine Islands, and Cape of Good Hope.
- „ July, 1861, XXX. 185. Comments on Stags and Stag horns. This report first announces his new conclusions in regard to *Cervus affinis*.
- „ February, 1862, XXXI. 331. Reports on collections from British Burma, and enumerates in a note the ascertained species of *Sciuridæ* in that province.
- „ February (continued), 1863, XXXII. 73, 451. Reports on collections from Burma and Port Blair. In a note are enumerated the *Testudinata* of the Burmese provinces so far as then ascertained.
- Letter from Blyth, December 2, 1864, XXXIV. Pt. 2, 48. Comments on Milne-Edwards's Monograph of the Chevrotains.
- „ No date. On *Inuus Assamensis* and Indian Rats and Mice, XXXIV. Pt. 2, 192.
- „ September 17th, 1865, XXXIV. Pt. 2, 279. Refers to his forthcoming Comments in the Ibis on Jerdon's 'Birds of India.' Concludes with an enumeration of the species of *Arboricola*.
- „ No date. XXXV. Pt. 2, 156.

Communications to the Journal of the Society. The papers marked with an asterisk were reprinted in the Annals of Natural History.

1841. General review of the species of true Stag, or Elaphoid form of *Cervus*, comprising those more immediately related to the Red Deer of Europe. X. Pt. 2, 736.
- Monograph of the species of Wild Sheep. X. Pt. 2, 858.
- Description of another new species of Pika (*Lagomys*) from the Himalaya. X. Pt. 2, 816.
- Ditto of three Indian species of Bat, of the genus *Taphozous*. X. Pt. 2, 971.
1842. Notes on various Indian and Malayan Birds. XI. Pt. 1, 160.
- Notice of the predatory and sanguivorous habits of the Bats of the genus *Megaderma*, with some remarks on the blood-sucking propensities of other *Vespertilionidæ*. XI. Pt. 1, 255.

1842. Monograph of the species of Lynx. XI. Pt. 2, 740.
 Descriptive notice of the Bat described as *Taphozous longimanus* by General Hardwicke. XI. Pt. 2, 784.
 Monograph of the Indian and Malayan species of *Cuculidæ*, or Birds of the Cuckoo family. XI. Pt. 2, 897 and 1095.
1844. Notes of various Mammalia, with descriptions of many new species—
 Pt. 1, Primates. XIII. Pt. 1, 463.*
 Additions to and annotations on Hodgson's *Leiotrichine* Birds of the Sub-Himalaya, with a synopsis of the Indian *Pari* and Indian *Fringillidæ*. XIII. Pt. 2, 933.
1845. Notices and descriptions of various new or little-known species of Birds. XIV. Pt. 1, 173; XIV. Pt. 2, 546; XV. Pt. 1, 280; XVI. Pt. 1, 117-428.
 Description of *Caprolagus*, a new genus of Leporine mammalia. XIV. Pt. 1, 247.*
 Drafts for a Fauna Indica—No. 1, *Columbidæ*. XIV. Pt. 2, 845.*
1846. Notes on the Fauna of the Nicobar Islands. XV. 367.
1847. Some further notice of the species of Wild Sheep. XVI. Pt. 1, 350.
1849. Note on the *Sciuri* inhabiting Ceylon, and those of the Tenasserim provinces. XVIII. Pt. 1, 600.
 A supplemental note to the Catalogue of the Birds in the Asiatic Society's Museum. XVIII. Pt. 2, 800.
1850. Description of a new species of Mole (*Talpa leucura*, Blyth). XIX. 215.*
 Remarks on the modes of variation of nearly affined species or races of Birds, chiefly inhabitants of India. XIX. 221.
 Conspectus of the Ornithology of India. XIX. 229-319, 501.
1851. Notice of a collection of Mammalia, Birds and Reptiles procured at or near the Plateau of Cherra Punji, in the Khasia hills north of Sylhet. XX. 517.
 Report on the Mammalia and more remarkable species of Birds inhabiting Ceylon. XX. 153.
1853. Remarks on the different species of Orangutan. XXII. 369.
 Notes and descriptions of various Reptiles new or little known. XXII. 639.
1854. Monograph of the Indian species of *Phylloscopus* and its immediate affines. XXIII. 479.*
1855. Memoir on the Indian species of Shrews. XXIV. 24.*
 Report on a Zoological Collection from the Somali country. XXIV. 291.

1855. Further remarks on the different species of Orangutan. XXIV. 518.
1857. Description of a new Indian Pigeon akin to the 'Stock Dove' of Europe, with notices of other *Columbine*. XXVI. 217.*
1859. On the different animals known as Wild Asses. XXVIII. 229.*
On the Great Roqual of the Indian Ocean, with notices of other Cetals, and of the *Syrenia* or Marine Pachyderms. XXVIII. 481.
1860. On the flat-horned Taurine Cattle of S.E. Asia, with a note on the races of Reindeer, and on Domestic Animals in general. XXIX. 282—376.
Report on some Fishes, received chiefly from the Sitang river and its tributary streams, Tenasserim provinces. XXIX. 138.
The Cartilaginous Fishes of Lower Bengal. XXIX. 35.
1862. Memoir on the living Asiatic species of *Rhinoceros*. XXXI. 151.
Further note on Elephants and Rhinoceroses. XXXI. 196.
Ditto on Wild Asses and alleged Wild Horses. XXXI. 363.
1863. Memoir on the Rats and Mice of India. XXXII. 327.

List of communications to the 'Ibis.'

- I. p. 464. 1859. Letter stating the occurrence of *Catarractes pomarinus* in Moulmein, with remarks on the Zoology of the Andamans.
- II. p. 323. 1860. Note on Edible Birds' Nests. His letter, from which extracts are also published, mentions his new Cassowary, *C. uno appendiculatus*.
- III. p. 268. 1861. Note on the Calcutta Adjutant, *Leptoptilus argala*.
- IV. 1862. Among his letters extracted from in this Vol., the last (p. 385), on Jerdon's new Birds from Upper Burma, is the most interesting.
- V. 1863. Catalogue of the Birds of India, with remarks on their Geographical Distribution. Part I. *Scansares* and *Raptores*.
Note on the genus *Pyrrhula*.
His letter extracted from at p. 117 of this Vol. announces Tytler's last Andaman discoveries, *Hæmatornis Elgini*, etc.
- VI. 1864. His letter at p. 411 remarks on the distinct characters of the *Buconidae* and *Capitonidae*, which he had pointed out so far back as 1838.
- NEW SERIES. I. 1865. A few identifications and rectifications of Synonymy.

- II. 1866. The Ornithology of India. A Commentary on Dr. Jerdon's 'Birds of India.'
- III. 1867. The same paper continued.
The Ornithology of Ceylon. A supplement to Dr. Jerdon's 'Birds of India.'
- IV. 1868. Extracts from letters only.
- VI. 1870. Notes relating chiefly to the Birds of India; being Comments on the Collections of the Leyden Museum, which Blyth had visited in 1869.
- THIRD SERIES. II. 1872. Letter commenting on Hume's observations on *Haliæetus albicilla*, and on Khasia Birds in the India Museum.

Communications to 'Annals of Natural History.'

1843. FIRST SERIES. XII. pp. 90, 165, 229. List of Birds obtained in the vicinity of Calcutta, with remarks on their habits.
1844. XIII. p. 113. Further notice of the species of Birds occurring in the vicinity of Calcutta.
XIII. p. 175. Description of some new species found in the neighbourhood of Calcutta.
XIV. pp. 34-114. Further observations on the Ornithology of the neighbourhood of Calcutta, with notes by H. E. Strickland.
1847. XX. p. 382. Critical remarks on the republication by Mr. Strickland of Karl Sundevall's paper on the Birds of Calcutta.
XX. p. 313. Critical remarks on J. E. Gray's Catalogue of Hodgson's Collections.
1848. SECOND SERIES. I. p. 454. Corrections of ditto.
1871. FOURTH SERIES. VIII. p. 204. On the supposititious *Bos* (?) *pegasus* of the late Col. C. Hamilton Smith.
1872. X. p. 399. On the species of Asiatic two-horned Rhinoceros.

I find on reference to the Index published in 1872 of the Proceedings of the Zoological Society, that besides exhibiting and remarking on Horns and other specimens at its meetings, Blyth contributed the following papers:—

1861. Notes on some Birds collected by Dr. Jerdon in Sikkim.
Letter on *Rhinoceros crossii*, Gray.

1863. Synoptical List of the species of *Felis* inhabiting the Indian Region and the adjacent parts of Middle Asia.
1864. Notes on sundry Mammals (*Chevrotains*, Asiatic Civets, and the Unicorn Goat of Tibet).
1866. Ditto on African Buffalos.
1867. Remarks on an Indian Quail (*Rollulus superciliosus*).
Notes on three Asiatic species of Deer, viz. *Rucervus duvaucelli*, *R. schomburgki*, and *Panolia eldi*.
1869. Notice of two overlooked species of Antelope (*Bosclaphus major* and *Strepsiceros imberbis*.
On the Hybrid between the Chamois and the Domestic Goat.
Contributed to Journal of Travel and Natural History.
1868. No. 4. Review of Layard's 'Birds of South Africa.'

E R R A T A.

"No. 1. 1875," had been introduced into the upper corners of some of the earlier pages, which were printed off before the oversight was discovered.

p. 24. "Order Secundates" omitted in the heading over the words "Sub-order Carnivora."

p. 52, note. For "P.Z.S. 1873," read "1872."

remarks Mason, "the Tapir is by no means uncommon in the interior of Tavoy and Mergui provinces; I have frequently come upon its recent foot-marks, but it avoids the inhabited parts of the country. It has never been heard of north of the valley of the Tavoy river."

Fam. Rhinocerotidæ.

Rhinoceroses.

125. RHINOCEROS SONDAICUS (J. 213).

Rhinoceros sondaicus, Cuvier; Horsfield, Zool. Res. in Java; S. Müller, Verhand. t. 33; *R. nasalis*, *R. stenorhynchus*, et *R. floweri*, Gray, apud Busk, P. Z. S. 1869, p. 416. *Khyen-hseu*, Mason.

The Lesser One-horned Rhinoceros. So far as I have been able to satisfy myself, this is the only single-horned Rhinoceros of the Indo-Chinese and Malayan countries, its range of distribution extending northward to the Gáro hills, where it co-exists with the large *R. indicus*, and to eastern and Lower Bengal. It would appear to be the only Rhinoceros that inhabits the Sundarbáns, occurring within a few miles of Calcutta; and yet I know of but one instance of its having been brought to Europe alive,* and then it was not recognized as differing from *R. indicus*, which latter is not uncommonly brought down the Bráhmáputra from Assam, and sent to Europe from Calcutta. There is reason, also, to believe that *R. sondaicus* is the species which was formerly hunted by the Moghul Emperor Báber on the banks of the Indus. Southward it inhabits the Malayan peninsula, Sumatra, Java, and Borneo (? *vide* Busk, *loc. cit.*). It is about a third smaller than *R. indicus*, from which it is readily distinguished by having the tubercles of the hide uniformly of the same small size, and also by having a fold or plait of the skin crossing the nape, in addition to that behind the shoulder-blades. In *R. indicus* the corresponding fold does not thus meet its opposite, but curves backward to join—or nearly so in some individuals—the one posterior to the shoulders. A fine living male, before referred to, was exhibited for some years about Great Britain, and was finally deposited in the Liverpool Zoological Gardens, where it died, and its preserved skeleton is now in the anatomical museum of Guy's Hospital, Southwark. Two passable figures of it from life are given in the "Naturalists' Library," where it is mistaken for the huge *R. indicus*.

* [Since Mr. Blyth wrote this paper, another example of this species is now alive in the Zoological Society's Garden.—J.A.]

Rhinoceros sondaicus is found at all elevations, as remarked of it by Dr. Horsfield, in Java; and from the mountains of Palouk, thirty miles north of Mergui, a writer quoted by the Rev. F. Mason observes—"We were on the summit of the highest range of mountains in the provinces. The tall timber trees at the first ascent were dwindled into a thick growth of stunted bushes, unmixed with a single shrub. The path, which was narrow and steep, had reached a level spot, that had been in the rains the wallowing place of a rhinoceros; for it has the habit of wallowing in the mire no less than the hog and the buffalo." The Sumatra Rhinoceros was also tracked by General Fyche to an altitude of about 4000 feet, when he obtained a close view of the animal with two finely developed horns.* Crawford was assured at Bangkok that a thousand Rhinoceros horns were thence annually exported to China.

According to Helfer, the *R. indicus*, in addition to *R. sondaicus*, inhabits the northern portion of the Tenasserim provinces; and Mason asserts that a single-horned Rhinoceros from the Arakan jungles was purchased by the London Zoological Society, and lived for many years in the Regent's Park, the species in that case being unquestionably *R. indicus*. Again, according to a writer in the Oriental Sporting Magazine,† both species of one-horned Rhinoceros occur in Burma, and he cites, as his authority for the statement, a writer in the first series of the same periodical (vol. ii. p. 35), mentioning that his said authority appears to be "a thorough sportsman and no mean naturalist." I nevertheless hesitate, upon present evidence, to admit the Great Indian Rhinoceros into the list of Burmese animals.

126. CERATORHINUS CROSSII?

Rhinoceros crossii, Gray, P. Z. S. 1854, p. 250, with figure of anterior horn, 32 in. in length over the curvature, and 17 in. in span from base to tip; *R. lasiotis*, Selater.

Ear-fringed Rhinoceros. In the Rhinoceroses of this type the hide is comparatively thin, and is not tessellated or tuberculated, nor does it form a "coat of mail," as in the preceding; but there is one great groove (rather than fold or plait) behind the shoulder-blades, and a less conspicuous crease on the flank, which does not extend upwards to cross the loins, as represented in F. Cuvier's figure; and there are also slight folds on the neck and at base of the limbs; the skin being moreover hairy throughout. There is also a second horn placed at some distance behind the nasal one.

Until recently, the existence of more than one species was unsuspected. In 1868, a young female was captured in the province of Chittagong, and on

* J. A. S. B. xxxi. p. 157.

† July, 1832, p. 301.

its arrival in the London Zoological Gardens, early in 1872, was believed to represent the *Rhinoceros sumatrensis* of Bell and Raffles; but soon afterwards another two-horned Rhinoceros was received at the same establishment from Malacca, obviously of a different species, which proved to be the veritable *R. sumatrensis*. Since its arrival, it has now (1873) considerably increased in size, and it probably is not yet quite full grown. As compared with *C. sumatrensis*, it is a considerably larger animal, with much smoother skin, of a pale clay-colour, covered with longer and less bristly hair, the latter of a light brown colour, as seen in the mass. The ears are placed much further apart at the base, and are not lined with hair as in the other, but are conspicuously fringed with long hair; and the tail is much shorter and largely tufted at the end. The horns are worn away, but if the species be truly assigned to *C. crossii*, the anterior would grow very long and curve to a remarkable extent backwards, while the posterior horn would probably be short. A second specimen of an anterior horn, almost as fine as the one first described, has recently turned up among the stores of the British Museum; and I found a smaller anterior horn of *R. crossii* in the Museum of the London Royal College of Surgeons, confirmatory of its peculiar shape. In this group the horns are remarkably slender except at the base, and of much more compact texture than in other Rhinoceros horns. I have reason to believe that this is the two-horned species which inhabits the Arakan hills, those of northern Burma, and which extends rarely into Assam; and I think it highly probable that the skull figured in Journ. As. Soc. B. xxxi. p. 156, pl. iii. f. 1, represents that of *C. crossii* (seu *R. lasiotis*), in which case the range of the species would extend into the Tenasserim provinces. A detailed notice of the individual sent to London has been given by Dr. Anderson.*

127. C. SUMATRENSIS.

Rhinoceros sumatrensis, Bell, Phil. Tr. 1793, p. 3, pl. 2, 3, 4; *R. javanus*, F. Cuv. Mamm. Lithog., very young; *C. blythii*, Gray, Ann. M. N. H. (4), vol. xi. p. 360. *Kyen-shan*, Mason.

The Sumatran Rhinoceros is much smaller than the preceding species, with a harsh and rugose skin, which is black, and clad with bristly black hairs; the ears less widely separated at base, and filled internally with black hairs; the muzzle anterior to the nasal horn much broader; and the tail conspicuously longer, tapering, and not tufted at the end. Horns attaining considerable length, and curving but slightly backwards, as represented in Journ. As. Soc. B. xxxi. p. 156, pl. iv. f. 1.

* P. Z. S. 1873, p. 129.

This is the ordinary two-horned Rhinoceros of the Tenasserim provinces, extending into Siam, and southward throughout the Malayan peninsula and Sumatra; but in Borneo there would appear to be a still smaller species, which is referred to the same by Professor H. Schlegel. How far northward its range extends has not been ascertained, but I suspect that it does not occur in Arakan. A Rhinoceros of some kind inhabits the province of Quang-si, in China, in lat. 15 deg. N., as noticed by Du Halde. In general, this is an exceedingly shy and timid animal, but it has been known to attack the night-fires of travellers, as happened once to Professor Oldham. In this case the animal was shot, and its skull is now in the Museum of Trinity College, Dublin, where I have verified it as appertaining to the present species. For remarks on this and the preceding species, *vide* Ann. M. N. H. (4), vol. x. (1872), p. 399. Lieutenant Newbold noticed the existence of the "Badok, or Sumatran Rhinoceros" in the Malayan peninsula in 1838.*

Order SYRENIA.

Fam. Halicoridæ.

128. HALICORE DUGONG (240).

Trichechus dugong, Erxleben, F. Cuvier, Mamm. Lithog. ii. 120; Zool. Aristolabe, Atlas, t. 27.

The Malayan Dugong. Mason records that the existence of this animal in the Mergui archipelago was brought to his notice by the late Rev. S. Benjamin in 1853. It is occasionally obtained by the Andaman Islanders. Finlayson strangely asserts that in this animal "a single spiraculum opens near the top of the head."

Fam. Manidæ.

Pangolins.

*129. PANGOLINUS LEUCURUS.

Manis lucurus, Blyth, J. A. S. B. xi. p. 454; xvi. p. 1274. *Theu-khwæ-ghyat*, Mason.

Burmese Pangolin. Ranges from Arakan to Mergui, and is probably the species "closely allied to *javanicus*" observed by Dr. Anderson near Bhamo. From Malacca I have only seen the *P. javanicus*, Desmarest, and it is probable that *P. auritus*, Hodgson, 1836 (*Manis dalmanni*, Sundevall, 1842, *M. multiscutata*, Gray, 1843), occurs to the northward. From Cambodja Dr. Gray gives *P. pentadactyla* (*Pangolinus typus*).

* Madras Journ. Lit. Sc. vii. p. 70.