

Pages from the Old Records

A Forgotten Ornithologist: Samuel Richard Tickell (1811-1875)

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This engaging and informative article, attached below, may be considered one of the earliest works on Indian birds. It is produced by a prodigious colonial administrator in India—Lt. Samuel Richard Tickell (1811-1875). He is primarily known in history as the first administrator of the Kolhan Government Estate (KGE), corresponding to the present West Singhbhum district of Jharkhand.

Born in Cuttack in 1811, Tickell was inducted into the Bengal Native Infantry in 1834. In 1837, he was appointed the Governor General's Assistant Political Agent in the newly established KGE.¹ Tickell's tenure in KGE (May 1837–May 1840, February 1841–April 1842) was marked by the introduction of the paternalistic mode of governance in Kolhan, under the guidance of his mentor and superior, Captain Thomas Wilkinson, Political Agent to the Governor General in South West Frontier Province (SWFP), which comprised the entire Chotanagpur region, including Singhbhum.

Captain Wilkinson gave Tickell a set of guidelines for introducing paternal administration in the KGE.² Tickell's subsequent administrative measures, like reorganization of the age-old Manki-Munda system, multiplication of haat-bazars, opening of modern schools and hospitals proved to be the watershed events in the history of Kolhan, which earned him respect of the Ho adivasis of Kolhan and appreciation of the colonial government in Bengal.

Tickell's other claim to eminence was his being a pioneer colonial ethnographer who, for the first time, wrote about the Ho adivasis of Kolhan in *Memoir on Hodesum (improperly called Kolehan)*, published in the *Journal of the Asiatic Society of Bengal* in 1840. He was also the earliest linguist of the Ho language, and he wrote Vocabulary

¹ Kolhan Government Estate was established in 1837, after a brutal military expedition led by Captain Thomas Wilkinson against the freedom loving Ho adivasis of Kolhan in 1836-37.

² Wilkinson to Tickell, 13 May 1837, para 23. South West Frontier Political Despatch Register (SWFPDR) from 13 May 1837 to 1 December 1840, Vol. 231, Patna: Bihar State Archives.

of the Ho Language and Grammatical Construction of the Ho Language, both of which were published alongside *Memoir* in the same journal that year.³

These two areas of his work were enough to count him as a great scholar-administrator. However, not content with them, he excelled in one more field, and where his true passion seemed to lie—Natural History, particularly ornithology.

In 1833 when he was barely 22 years old, he published a paper in the *Journal of the Asiatic Society of Bengal*, Vol. II, entitled ‘List of Birds, collected in the Jungles of Borabhum and Dholbhum’ (paper enclosed below). This piece was his first published work, which is now regarded as one of the earliest descriptive writings on birds in India. In the ‘List of Birds’, he documented sixty different species of birds, several of which had previously been unknown.

The ‘List of Birds’ was completed before Tickell joined as Assistant Political Agent in Kolhan. Therefore, it describes birds outside Kolhan—in forest-clad Barabhum and Dhalbhum regions, which, as Tickell informs, ‘afford asylums to the rarer and wilder animals of the forests, which few or no footsteps have invaded’. In this wilderness, Tickell claims to have sighted a hippopotamus for the first time in this territory, bordering the Bhil country, and also Gaur, a species of large bull, in the hilly parts, and a giant snake, that surpassed even the largest python in size, in the marshy area of the jungle. Tickell also mentions spotting flying squirrel in the jungles, and lastly, he made a curious claim of having a glimpse of ‘*Orang Otang*’ (now spelled Orangutan)⁴ ‘in the thick and high woods bordering the Gurum nala near the valley of Subornika [Subarnarekha]’ (the reference of Garam Nala near the Subarnarekha river basin suggests that Tickell is probably describing a geographical location around the modern Jamshedpur town in the East Singhbhum district).

Even in 1837 when Tickell was appointed the Governor General’s Assistant Political Agent in the KGE, he made Kolhan his field of research on birds and animals. Thus, in the ‘Memoir’ he mentions the presence of Gaurs, a monstrous species of snake, called ‘Garra bing’ in Ho, meaning river snake, and three species of squirrels, one of them was a large grey flying squirell in the jungle of Kolhan.⁵ Tickell’s description of the flora and fauna of Ho-desum or Kolhan goes on to show that his ecological link was lasting.

Tickell continued his research and writings on birds and animals throughout his career, which mostly appeared in *JASB* and *The Field* magazine. However, Tickell’s magnum opus was his manuscript, ‘Illustrations of Indian Ornithology’. During its compilation, he was living in England after his retirement from the Indian services in 1865. Unfortunately, by the time this work was about to be completed, he developed a certain infection in both eyes, which gradually worsened and led to his total blindness in 1870. Unable to do further work, he donated his unfinished work to the Zoological Society of London in 1874, a year before his death.

³ S. R. Tickell, ‘Memoir on the Ho desum’ (improperly called Kolehan), *Journal of Asiatic Society of Bengal*, vol. XI, part II, 1840. 694-709, 783-808. For a deeper understanding of the contribution of Tickell as Ho ethnographer and linguist, see Asoka Kumar Sen, ‘Between Ethnography and History: Tickell’s Vocabulary and the Early History of the Hos’ (Forthcoming Book Chapter).

⁴ Orangutans are known for their reddish fur and human-like features. They are the largest arboreal mammal spending most of their time in trees (<https://www.worldwildlife.org>).

⁵ S. R. Tickell, ‘Memoir’, *JASB*, Vol. IX, Pt. II, 1840, 702-705.

Although his work remained unpublished, it was well preserved for future study and reference, making a milestone in ornithology. Commenting on the methodology of his work, Arthur Viscount Walden wrote,

‘Being gifted with a ready pencil and a facile brush, Colonel Tickell, in most instances, made coloured drawings of the animals he secured; and in the course of time he had accumulated many drawings, together with copious notes relating to the species he had captured or observed... Every species personally known to the author is figured; and many of the plates are works of art. It may be affirmed that nearly all are good, and that many are almost perfection’.⁶

It is a fitting tribute to him that some bird species in India are named after him. These are: Tickell’s Blue flycatcher, Tickell’s Thrush, Tickell’s Flowerpecker, Tickell’s Leaf Warbler, Tickell’s Buff Breasted Babbler, Tickell’s Brown Hornbill.⁷

It appears that Tickell’s passion for ornithology positively impacted his administrative duties. As P. C. Roy Chaudhury writes,

‘The study of the birds, which was an obsession with Tickell, took him to all the remote corners of his district and brought him in intimate touch with the people. That was the sole reason of his success as an administrator’.⁸

Thus, Tickell’s fascination for birds and animals helped his administration, and not the other way round. His dislike for Chaibasa as headquarters town, which he expressed in his ‘Memoir’,⁹ was also the reason for his frequent tours in the pleasant interiors of KGE, as ‘he would sit on the *chatai* (mat), spread by the Adibasis, crack jokes with them, and drink their homebrewn *handia* (drink)’¹⁰

Despite contributing so much to the emerging field of ornithology in India, and remaining a competing figure alongside renowned contemporary ornithologists, like Thomas Jerdon (1811-72), Edward Blyth (1810-1873), and Allan Octavian Hume (1829-1912), Tickell is seldom remembered today as an important ornithologist in India

⁶ Arthur Viscount Walden, ‘Notes on the late Colonel Tickell’s manuscript Work entitled ‘‘Illustrations of Indian Ornithology’’, *Ibis: international journal of avian science*, Vol. 18, Issue 3, July 1876, 336-357.

⁷ Bikram Grewal, Flock Music: Samuel Tickell: The Man India Forgot, Mumbai Mirror, 24 June, 2018. (<https://mumbaimirror.indiatimes.com/others/leisure/sustainability-in-a-hoebox/articleshow/64617748.cms>); Sharad Vats, Jerdon and Tickells, IndiaBirdWatching, 14 April, 2020. (<https://www.indiabirdwatching.com/jerdon-and-tickells/>).

⁸ P. C. Roy Chaudhury, ‘Tickell-A Forgotten Great Administrator’, *Journal of the United Service Institution (USI)*, New Delhi, July-September, 1974, 294.

⁹ Expressing his disappointment over the selection of Chaibasa as the headquarters town of KGE, Tickell writes, ‘The climate of the Kolehans has been found to be on the whole healthy, although the station of Chyebassa, which was unfortunately selected hurriedly, and without sufficient examination and comparison with surrounding spots, is not a favourable sample, situated on a barren, gravelly plain, interspersed with brushwood, and near piles of bare rocks. The heat during the day is excessive, but the nights are invariably cool, and the air invigorating and exhilarating, in spite of the temperature, owing probably to its peculiar dryness. A mile only to the south-east, at the village of Tambore, the country rises in undulating meadows, beautiful in appearance as an English park, and infinitely cooler than Chyebassa’ (Tickell, ‘Memoir’, 705).

¹⁰ Roy Chaudhury, 294.

and remains a forgotten name in natural history.¹¹ Even his grave did not do justice to him by merely recording the inscription:

In loving memory of
Colonel Samuel Richard TICKELL
Bengal Army, Born 1811
Died 20 April 1875 at Cheltenham, Gloucestershire.
At rest at Leckhampton St Peter Churchyard, Gloucestershire.



Grave of S. R. Tickell, Source: militaryimages.net
(<https://www.militaryimages.net/media/samuel-richard-tickell.120299>)

However, Tickell's legacy as an ornithologist, natural historian, and artist lives through his contributions in old scientific journals and through various species of birds named after him, meriting a more in-depth study of the intellectual administrator who created and enriched the epistemic tradition that a galaxy of British administrators inaugurated in India.

¹¹ Paul Streumer is an exception as he has studied Tickell's ornithological activities in his important work, *A Land of Their Own: Samuel Richard Tickell and the Formation of the Autonomous Ho Country in Jharkhand*. Wakkaman: Houten. 2016.

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VOL. II.
—
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1833.
—

"It will flourish, if naturalists, chemists, antiquaries, philologers, and men of science, in different parts of *Asia*, will commit their observations to writing, and send them to the Asiatic Society at Calcutta; it will languish, if such communications shall be long intermitted; and it will die away, if they shall entirely cease."

SIR WM. JONES.

—
Calcutta:



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1833.

Population of the District of Mürshedabad.

Names of Thannas.	Number of villages in each.	Number of houses		Total.	Number of Inhabi- tants.		Total.
		Musul- man.	Hindu.		Musul- mans.	Hindus.	
Gokaru,	149	2666	7724	10390	12771	38045	50816
Gowas,	87	8395	5427	13822	46716	27653	74369
Khára,	114	3702	3413	7115	17863	16070	33933
Sulatábád, ..	158	5612	6904	12516	25368	30836	56204
Súti,	128	3021	1795	4816	28499	6163	34662
Harharpára, ..	86	3862	7290	11152	16282	36827	53109
Govindpur, ..	121	1988	6166	8154	12305	27159	39464
Sharsheganj, ..	87	8395	5427	13822	40416	27023	67439
Kalyanganj, ..	113	868	4626	5494	4444	21865	26309
Nowadab, ..	33	1782	2732	4514	10460	12311	22771
Jalinghi	73	3944	3619	7563	19197	20598	39795
Chendaga ..	70	613	2302	2915	2820	10102	12922
Ranitaláo, ..	157	5780	6733	12513	34649	34768	69417
Bhadrihát, ..	129	1269	3904	5173	5890	15500	21390
Banwa,	104	5080	10739	15819	16441	48012	64453
Mirzapur, ..	168	2862	10682	13544	14576	51615	66191
Dewánsaray, ..	141	4483	4634	9117	21831	22375	44206
Bhartpur, ..	152	6131	3541	9672	26198	18302	44500

Total of the district, ..	2070	70453	97658	168111	356726	465224	821950
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Add for strangers or non-residents, ..							534
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822484

	Males.	Females.
Proportion of sexes, Musulmans,	188036	168696
Hindus,	241710	223514

429746

392210

Total of the Town and District, Houses,	208229
Inhabitants,	969447

Ratio of inhabitants per house, 4.73

*IV.—List of Birds, collected in the Jungles of Borabhúm and Dholbhúm.**By Lieut. S. R. Tickell, 31st Regt. N. I.*

1. *FALCO LATHAMI*. *Colvy Falcon*? *LATHAM*. Male. From head to tip of tail 18 inches, breadth of wings 40 inches; eyes orange yellow, bill and cere bluish, top of head in front grey, sinciput pale orange-brown; feathers streaked dark and produced into a long horizontal crest, the end feathers of which are black, tipped with white; face and auriculars ashy; back of neck and top of back, pale rusty; feathers centered dark-grey brown; whole of back, scapulars, primaries, and part of tertials, dark clouded rich brown; coverts of wings pale rusty, clouded grey-brown, and blotched with white spots; some of the tertials

the same, greater coverts reddish ash-brown ; tail dark greyish brown, barred broadly with dark brown, and tipped obscurely white (as are the tertials), under parts white ; streak of black down centre of throat, neck white tinged rusty, broad bars of rusty on breast and belly, spots of the same on thighs ; legs clothed with short white feathers to the feet, which are of a horny color ; exposed part of the tarsi reticulated, claws black and solid. The head is broad, eyes protruding, crest erectile, bill with scarcely any notch, legs short and stout, body muscular and compact.

This subject was killed at Sísdah, in Borabhúm, in dense bambú jungle, occupying the interval between two ranges of hills. It was one of a pair ; the other, probably the female, appeared larger and showed more white on the wing. They perched high on the summits of tall decayed trees, and uttered wild plaintive screams. (The only specimen seen.)

2.—(*Honey Buzzard* ?) Length 19 inches, spread of wings 44. Female. Eyes yellow, bill blue, lores green, top of head, nape, and sides of chin, (at base of the bill,) white, streaked brown ; whole upper parts uniform clear ambre-brown, brightest on wings, dunnish on back, upper tail coverts pale rusty and whitish grey. Tail a hoary gull grey, primaries do. but darker and bluer : some of the outer ones nearly black, 3rd quill longest ; under part a clear reddish brown, legs yellow. (Tarsi reticulated.) Killed at Kosmak, in Borabhúm, in thick grass jungle, perching on the ground. Stomach contained lizards. It was in company with the annexed.

3. **FALCO HERBÆCOLA*. *Kohee Falcon*, T. Female. Length 18 inches, breadth 39. Aspect keen, body light and elegant, tail and wings long, tarsi elongated ; bill blue, tipped black, eyes dark, lores and legs yellow ; eyebrows, forehead, patch under the eye, and an indistinct ring round the neck, whitish ; whole upper parts pale brown, margined as in our female Kestrel (*F. TINNUNCULUS*), greater coverts dark lead brown, primaries brownish hoary grey, banded dark brown ; upper tail coverts white, with reddish brown crescent-shaped marks ; tail, two middle feathers full hoary grey, two next do. melting into rusty towards their shafts, outer ones pale rusty greyish white, the whole broadly banded with sepia ; upper half of outside tail-feathers banded rusty and white : all the feathers tipped white. Breast, belly, vent, &c. striped brown and fawny white as in female Kestrel.

* The names of such birds, as have never come under my notice before, and are necessarily of my own coining, I have distinguished by the addition of a T.

This and the foregoing species appeared tolerably common in those immense tracts of grass jungle which extend with little intermission from near the Kossai river, to the base of the Lakisinní hills, in Sutrakehaní. They perch on the ground, or on the small babúl trees which are interspersed among the jungle, occasionally soaring with a low steady flight over the top of the grass, in quest of prey. They are called by the Hindus inhabiting those regions, "Shahín" and "Kohí," and are much prized by the Coles for their hawking qualifications. The stomach of the present subject contained greater part of a Myna.

4. *FALCO NISOSIMILIS*. *Jungle Sparrow-Hawk*, T. Size and shape of English sparrow-hawk, upper parts and head a dun-brown; upper tail coverts pale obscure brown; tail as back, with four cloudy bands, tipped lighter; quills as back, eyebrows and forehead white; feathers tipped dark, auriculars, cheeks, and throat white with short brown stripes. Breast, belly, and thighs white, with transverse brown streaks, vent white. Thigh feathers each a little lower than knee, legs and toes long and slender as in sparrow-hawk. Bill and cere pale bluish, lore with dirty white bristles. Eyes pale gold, legs yellow, (tarsi scutellated): wings reach to the middle of tail, 4th and 5th quills longest. Eyes operculated by the brow as in *F. NISUS*. Male. Stomach contained lizards. Killed at Marcha, in Borabhúm. Frequents topes and cultivation.

5. *STRIX DUMETICOLA*. *Jungle Horned Owl*, T. Male. From head to end of tail 1 foot 9 inches, spread of wings 4 feet 4. Eyes deep gold, bill black, legs horny, and bare; claws black: whole upper parts, face, and crest pale brown; feathers centred darker, wings do. mottled with grey and blotched occasionally white; primaries and tail pale-brown, barred darker. Breast, belly, thighs and vent tawny-white, barred transversely with rusty and striped longitudinally dark brown.

Frequents the thickest jungle, in deep retired dells, between high rocks or scarped hills, perching low and passing the midday in the centre of some impervious thicket. It is however partially diurnal, and easily flushed in the brightest day, when it flies heavily over the underwood to a short distance, and drops headlong into the first convenient bush. Towards twilight, it emerges from its concealment, and may be observed seated with great majesty on the summit of some granite boulder, on the side of a hill overlooking the surrounding jungle. Its voice is hoarse and hollow, and connected with the gloomy scene and hour in which it is heard, the repulsive laugh in which it occasionally vents its notes "*Haw, Haw, Haw, Ho!*" cannot fail

to strike a fanciful listener with unpleasing associations. I met with two of this species near Sísadah in Borabhúm, probably a solitary pair, and have placed it as a new addition to the *STRIX* family, as it differs essentially from any yet described by PENNANT, LATHAM, or HARDWICKE, as found in India.

6. *STRIX CANDIDUS*, *Jungle Owl*. T. Male. From head to tail 16 inches, spread of wings 3 feet 4. Eyes black, bill and legs horny, tarsi denuded : whole upper parts shaded with dark and light brown, as in the short-eared owl, the feathers indiscriminately sprinkled with clear white spots ; primaries and tail tawny-brown, broadly barred darker, radial feathers of face, breast, belly and vent pure white. This species frequents the long grass jungle, and passes its life almost entirely on the ground, seldom perching on the lowest trees. When flushed, it rises heavily, and drops again into the grass, as suddenly as if shot. It is silent and solitary, the young keep in company some time after attaining their full growth. The jungle owl is found throughout Bengal and the upper provinces in tracts of long grass, to which it appears wholly confined. Male and female scarcely differ.

7. *STRIX RADIATA*. *Little barred Owl*, T. (*St. Castanoptera* ? Horse. Java.) Male. Length $7\frac{1}{2}$ inches, breadth 18 ; 4th quill longest. Bill greenish horn. Eyes gold, feet and claws horny, slightly feathered to the claws. Face, head, and upper parts pale amber-brown, clearest on head, greyest on scapulars and back, the whole barred with dull sepia ; greater wing coverts black, the outer webs of the feather white mixed with rusty, edges of wing chesnut, barred brown ; alula spuria and primaries do. barred black ; edges of scapulars have greyish white patches. Tail dark coppery brown, barred pale rusty ; breast as black but paler, the brown changing to griseous white towards the belly and thighs ; the whole under parts barred dingy sepia. Very common in the thickly-wooded parts of the Jungle Mehals, selecting the largest trees for its abode, from whence it keeps up its clamorous cries the greater part of the day. It is active, frolicsome, and diurnal, and feeds on insects.

8. *STRIX LUGUBRIS*. *Brown Wood Owl*, T. Male. In length 12 inches, breadth 2 feet 2. Eyes gold, bill and legs horny, tarsi and toes feathered, whole upper parts dull uniform brown. Beneath whitish, barred rusty ; primaries and tail, leaden brown, barred broadly darker. Inhabits the retired parts of the thickest jungle, coming towards the edges and open parts at night. It is completely nocturnal, and in a calm moon-light night, its incessant cries are heard to a great distance, resembling strongly those of a strangling cat. The only specimen seen was killed at Dampára, in Dholbhúm.

9. *LANIUS SILENS*. *Silent Shrike*, T. 9 inches from tip of bill to tip of tail, of which tail 4. Wings spread $14\frac{1}{2}$ inches, 3rd quill longest; eyes hazle, bill and legs black, plumage iron-grey, quills darkest; upper mandible slightly notched. Young bird is marked on the under parts with indistinct transverse bars. Common. Frequenting topes and large trees.

10. *IXOS VIRESCENS* ? Temminck. Male. Size of a starling. Eyes blood-red, feet and bill dark, body plump, olive-green, palest on head, where it is slightly greyish, tinged with yellow on upper tail coverts, quills and their coverts do. edged brighter green; tail as back, long, square; vent and under tail coverts, chin and base of lower mandible pale clear yellow; over the eye, and a spot on base of upper mandible, extending below the eye to the auriculars, obscure white; lower parts whitish tinged pale yellow; breast dashed with grey, bill deeply notched.

Killed in woody and barren country, at Bamireah, near Midnapur: appeared shy, silent and solitary, and partakes of the nature of the fly-catchers and thrushes. It flew and settled about the lower parts of bushes and thickets. Stomach contained berries and seeds.

11. *DRONGO CÆRULESCENS*. *Fork-tailed Shrike*, Latham ? Male. Shape and size of the smaller "King Crow." Head gross, bill hooked, not notched; eyes orange-red, bill and feet black, tail deeply forked, as long as the body; whole of upper parts dull metallic-black, deepest on head, brownest on quills; chin, throat, and breast iron-grey, below sternum white. Female does not differ. Frequents high timber, and is tolerably common. Note a wild mellow whistle, pleasingly and fancifully modulated. Insectivorous.

12. *LANIUS GRISEUS*. *Grey Wood Shrike*, T. Male. Length $6\frac{1}{2}$ inches, ashy-brown above, dull-white beneath; bill, eyes, and legs dark; mandible hooked, not notched; two centre feathers of tail as back, two next black, outer ones white; dark brown patch through the eyes, a white one above them, obscure brown mark from under mandible; breast tinged dusky reddish ash. Shy, solitary, rather rare, frequents saul jungle, has a jarring note.

13. *VANGA FLAVIVENTRIS*. *Yellow Bulbul*, T. (*Lanius Melanocephalus* ? Gml. *Turdoides Atriceps*. Tem. ?) Male. Length 7 inches. Eyes pale yellow, bill black, legs dark horn. Head and a slender erectile crest glossy-black, rest of plumage olive-green above, clear olive-yellow beneath; belly and vent bright yellow, quills and tail dusty. Frequented the beautiful hanging-woods of Dampára, in Dholbhúm, where alone I met with them. Manners sprightly, hurrying from tree to tree, with a short repeated song, like the common bulbul.

14. *CRINIGER SPLENDENS*, T. (*Irena Puella*, ? Horsf. *Edolius* ? of Natterer.) The bill totally dissimilar to the *Drongo*, with which *Irena* and *Edolius* are grouped. It is long, hooked equally in both mandibles, nostrils denuded, and more like the bill of the *Chough* than any other bird. The chief peculiarity of the bird is a crest, composed of long recumbent hairs, which ride from the head and fall back on the shoulders. The tail is long, slightly forked; the ends of the outer feathers turned up, in the shape of a scoop. In other respects it resembles the *Drongo*. The plumage is deep black, reflecting purple and blue in various lights; the wings are a deep glassy-green. These birds are tolerably numerous, but confined in locality. They frequent the large timber, which luxuriates in the lower portions and richer soil of the jungles, on the banks of nullas, tanks, &c.: the cotton tree, when in blossom, is a favorite resort, where they may be seen in small parties frolicking about. The voice is very changeable and in constant exertion, from a beautiful song, to whistling, chattering, and creaking, like a rusty wheel. The notes at times resemble the higher strains of an organ, and heard in the wild and lovely scenes where this bird is found, appear singularly striking and plaintive.

15. *MUSCICAPA TYRANNIDES*. *Shrike-like Fly-catcher*, T. Male. Length 4 inches. Eyes orange-hazle, bill and feet black. Bill flat, broad, long, straight, hooked, not notched. Head, nape of neck, back, wings and tail, black; rump, wing coverts, and line along tertials, and a broad streak along auriculars, from base of bill, white. Breast and belly pale silvery grey. Outer tail-feather white. Killed at Sísdah in Borabhúm. Rare, frequents high timber, has a slight song.

16. *MUSCICAPA PRINCEPS*, Cuvier; *M. Miniuta*. Temmink. Rare. Indiscriminately spread through the jungles. Sometimes solitary, at others, flying in small parties. (Figured in Gould's Century of Birds.)

17. *M. HYACINTHA*, Temmink. Size of a Robin. Male. Upper parts, wings, and tail ashy Antwerp-blue; between the eye and beak a dark space. Chin and breast buff-color, rest white. The colors are paler, but distributed not unlike those of the American blue Robin. Rare, silent, frequenting high trees: killed at Lika in Borabhúm.

18. *MUSCICAPA OCCIPITALIS*. Common in all parts of the jungles.

19. *M. CÆRULIA*. Common.

20. *M. MACULATA*. *Pied Fly-catcher*. Linn. Marked the same as the subject mentioned in Bewick. Rare.

21. *M. PEREGRINUS*. *Parus* ? Figured in Gould. Common in the jungles. In manners closely resembling our long-tailed titmouse. The males unite in flocks apart from the females at the close of the cold season.

22. *MOTACILLA SYLVATICA*, T. Rare, shy, found in low, barren saul jungle; black, with white wing covers, small.

23. *M. LUZONIA*. Numerous, frequenting high timber near nullas, &c. well known in Bengal as Indian Robin.

24. *TURDUS MACROURUS*, Vaillant? *Shahmour Warbler*. $9\frac{1}{2}$ inches long, of which tail 5; plumes glossy-black, tail cuneiform; outer feathers tipped white. Upper tail coverts white, lower part of breast and belly deep chesnut, eyes and belly black, legs fleshy horn. The Shahmour is well known and justly prized in India for its song, which in its native jungles is heard in a degree of perfection, to which the notes, when encaged, can bear little comparison. It is spread throughout the jungles, and haunts the deepest glades and hollows, keeping in the centre of thickets. In the grey mornings and evenings the notes are heard through the valleys, ceasing with twilight. The song of the Shahmour is fully equal in compass, power, depth and modulation to that of the Nightingale. The strains sweep with a gush of sweetness through the enchanting solitudes which this bird makes its favourite resort, at times when the other inhabitants of the forests are silent in rest. And in unison with the surrounding scenery, in which nature seems to have lavished every fantastic invention of beauty, the effect produced on the mind and ear can alone be appreciated by those who have witnessed the magnificence of a tropical forest.

25. (*MOTACILLA SUECICA*, *Blue-throated Warbler*. Linn?) (*Sylvia Cyanecula*, Meyer?) Male. Size and shape of Redstart, whole upper parts dark olive-brown, feathers of the crown centered darker, with a white patch over the eyes as in Whinchat. Eyes, bill, and legs dark horn, throat cobalt. The space from thence to the sternum is divided into transverse portions of color. Uppermost a band of chesnut-brown, then one of cobalt-blue, then white, and lastly chesnut again; below this all white; on the centre of the neck, adjoining the blue and chesnut of the throat, are two confluent patches of white and dark brown. A single specimen of this elegant species was seen and killed at Bamirah near Midnapur, in wild bushy country.

26. *MOTACILLA CALLIOPE*. *Ruby-throat Warbler*, Pallas. (*Turdus*, apud Latham and Gml.: *Accentor*, apud Temminck.) Male. Length 6 inches, plumage above olive-brown, beneath dull whitish. Band above and below eyes white, intermediate space black, feathers of throat slightly *scaly* (stiff and strongly scutellated); light scarlet with silvery edges; bill and legs horn, eyes dark. Rare, solitary, silent. Haunts thickets and underwood. Found at Dampára in Dholbhúm, and at Jehanabad, west of Hoogly.

27. *M. RUBICAPILLA*. *Rusty-crowned Warbler*, T. Female. 5 inches, eyes reddish hazle; bill and legs pale horn, crown of head rusty; feathers of nostrils, over the eyes, auriculars and sides of neck, pale yellowish green; upper parts olive, throat and breast pale yellow, shafted black. Found in the thick underwood, hollows, ravines, &c. Lively and agile, with a frequent piping note and occasional chatter.

28. *M. CANTATOR*, *Chiming Wren*, T. 4 inches. Male. Eyes hazle, upper mandible dark, lower pale orange; legs pale horn, crown black, with a longitudinal central yellow stripe; black stripe through eye and a yellow one over it; throat bright yellow, extending towards breast, lower parts lint-white, vent yellow; plumage above, clear olive-green. Frequents trees in the thickest parts of the jungle. Has a loud and incessant note, "pio, pio, pio, pio." Bill rather gross, as in *Winchat*, not flattened, not hooked as in *Regulus*, slightly notched: nostrils large, oblong, almost pervious.

29. *SYLVIA LONGICAUDATA*. *Long-tailed Warbler*. Gml. (*Malurus* of Vieillot.) Male. $5\frac{1}{2}$ inches, of which tail $2\frac{1}{2}$, bill and eyes dark, legs orange-horn color. Upper parts a pale dull brown, on face ashy. Under parts satin-white; quills and coverts pale clear brown; tail ashy brown, tipped obscurely black and then whitish; wings much rounded and short; first quill almost spurious, 5th and 6th longest; tail cuneiform. All the plumage waving and flimsy in texture, scarcely any tail coverts. Common. Has a sprightly intermittent song, perching for a time on the summit of a bush and then seeking thickest underwood. Frequents barren saul jungle.

30. *MOTACILLA OFFINIS*. *Olive Willow Wren*, T. (*Willow Wren*?) $5\frac{1}{2}$ inches. Male. Upper parts dark olivaceous ashy-brown. Beneath, brownish yellow ochre. Clear yellow streak over eye. Upper mandible dark, lower pale horn: legs horn, eyes hazle. Killed in high-timbered jungle, on the banks of a stream.

31. *M. DUMETICOLA*. *Thicket Warbler*, T. Male. Nearly 6 inches long, eyes reddish hazle, bill as former subject, legs pale fleshy horn; crown dingy rust, face and over eyes dirty whitish brown, auriculars darker. Whole of the plumage dull olive-brown, as in the thrush; tail slightly rounded, whole under parts white, streaked with the color of back, throat white. Female and male alike. Frequents the thickest foliage, at the top of high trees, and is rarely seen. Has a monotonous note, consisting of three sounds, which is heard incessantly during the morning.

32. *M. FULICATA*. *Sooty Warbler*, Cuvier. (Bill in no way allied to the group in which Cuvier has placed it.) Male. Size of a

robin. Upper parts dull dark brown ; under parts, including the eye, burnished black ; greater wing coverts white, next greater as back, but with a gloss of steel ; tail black, vent and centre of belly chesnut, quills of wings a deep claret-brown. Frequents low bushy jungle, and has the manners of the stone chat. The bill however is cylindrical, long, thin, partially curved, not unlike that of the house wren. Bill, legs, and eyes dark.

33. *M. SUBVIRIDIS*, T. Male. Allied to the *M. Zeilonica* of Horsf. Bill and legs pale bluish horn, eyes hazle ; plumage above olive-green, below olive-yellow ; wings black, edged yellow, greater coverts tipped white, tail dark olive-green. Common in thick bambú or saul jungle, on hills.

34. *TURDUS LIVIDUS*. *Leaden Thrush*, T. Head and neck pale orange brown. Rest of plumage blue grey. Size of a redwing. Female rather larger and duller in plumage. Shy, silent, solitary. Frequenting thickets in rocky jungles. Killed at Lattapora, in Borabhúm. Rare.

35. *T. UNICOLOR*, T. Size of preceding. Female. Eyes dark, bill and legs yellow horn, plumage a dirty grey, mixed on the back with olive, tinged on the head with brown. Wings and tail brownish ; coverts of tail iron-grey ; breast Isabella grey, belly white. Silent. Frequents large trees. Rare. Killed at Bansíghar in Borabhúm.

36. *ORIOLOUS M'COSSHII*, T. Male. Length 9 inches. Bill, feet, and eyes black. Top of head black, each feather edged yellow ; forehead yellow, throat and front of neck white, streaked black. Rest of body yellow ; coverts all centered black, quills brownish black, fringed pale grey-yellow ; tail centered olive, tinge of olive on back. Frequents the highest trees in open jungle cultivation, &c. Sings beautifully. (The only specimen seen.)

37. *NECTERINIA SEHERIÆ*, T. (*Cynniris Gouldii* ?) Male. Length 4 inches. Crown burnished copper, with green reflections. Neck, back, and breast, a deep blood carmine color. A stripe on each side the throat, from the under mandible brilliant violet ; lower part of back yellow ; tail coverts bright green, tail violet and green, blended with metallic lustre ; quills dusky brown, belly and vent dusky ; eyes, bill, and legs dark. This rare and elegant subject was procured near Seheria in Borabhúm, sitting about the low willow bushes in the dried bed of a stream. It has no song, but a shrill chirp.

38. *N. MINIMA*, T. Male. Length 3 inches, plumage ashy olive, paler beneath ; wings and tail brown. Common in saul jungle.

39. *CHLOROPSIS CÆSMARYNCHOS*. *Hook-billed Chloropsis*, Jardin. Appears to be completely out of its place in Cuvier's arrangement. But

the description is scanty and ambiguous, and may possibly not refer to the present subject. Male. Length $7\frac{1}{2}$ inches. Bill as in warblers, but hooked throughout, (much, as in *Certhia*.) Toes, three before, one behind; plumage parrot-green, palest beneath; throat, part of cheek, and forehead black; a lilac spot by lower mandible, spot of bright blue on humerus; bill black, eyes hazle, legs pale bluish horn. It has a beautiful song, and is common in the jungles, flying about in small parties. It is an excellent mocker, and imitates the notes of almost every small bird of the country. (Frequently sold in cages at Calcutta and Monghír.)

40. *EMBERIZA SYLVATICA*. *Bush Bunting*, T. Very common throughout India.

41. *LOXIA BICOLOR*. *Gobergosee Grosbeak*. T. Male. Length $4\frac{1}{2}$ inches. Bill dark bluish, eyes hazle, legs dark; breast, belly, and part of upper tail coverts white; rest of plumage dense brown; tail black, cuneiform. Flies in small flocks, with a low piping note, frequenting sugar fields, low bushes. Fructivorous.

42. *FRINGILLA AGILIS*. *Piping Finch*, T. Four inches long; plumage ashy-olive, with grey and greener portions; below dull white tail partially tipped white; legs black, bill bluish, eyes orange. Perched on summits of trees. Appeared lively and agile, with a sharp clear whistle. Not uncommon.

43. *EMBERIZA OLIVACEA*. *Kirwa Bunting*, T. Male. Rather larger than a sparrow. Olive-brown above, obscure white beneath; feathers of head and neck centered darker; greater coverts dark brown, tipped white; tertials do. edged olive and tipped grey; primaries and tail dark-brown edged olive-green; eyes hazle, bill bluish, legs flesh. In flocks, on open cultivated land.

44. *FRINGILLA FLAVICOLLIS*. *Chilliana Finch*, T. Male. Size of a sparrow, slighter, with longer bill and wings; the same color as the hen sparrow. Lesser coverts chesnut, throat white, a patch of yellow immediately below, in front of neck.

45. *PICUS GUTTACRISTATUS*. *Pearl-crested Woodpecker*, T. (*P. Amantius*, Horsf. Java ?) Female. Length $10\frac{1}{2}$ inches, bill $1\frac{1}{2}$; eyes amber yellow, bill blackish horn, legs pale blue, forehead dusty brown; crest large, full, black, with round white spots; neck white, with broad longitudinal black stripes, one through eye, two narrower from maxillary angle, confluent below auriculars, another down centre of neck; front of neck, breast and belly, marbled black and white; tail and quills black; back and upper tail coverts pale bright scarlet, with subterjacent white bars; rest of upper parts and coverts deep olive-gold color.

Common. Frequenting the largest timber, cotton trees, &c. Noisy, agile.

46. *P. BENGALENSIS*, Horsf. Differing merely from the foregoing in having the crest red and the tail coverts the same as the back. Is too well known in Bengal to require description.

47. *P. AUROCRISTATUS*, T. Plumage and size scarcely differ from that of the *P. Medius* of Bewick. The crest is of a golden-buff color, with the extremity scarlet; lower parts brown and white; belly scarlet. The male is $\frac{1}{2}$ larger than the female. The latter has the entire crest golden-buff. Pretty common in thick jungles. Has a squeaking monotonous note.

48. *SITTA FRONTALIS*. Swainson. *S. Velata*, Temminck. *Orthorhynchus Frontalis*, Horsf. Java. Does not differ from the description given in Cuvier. Rare. The single specimen seen was procured at Kankarjuri, near Dampára in Dholbhúm. It flies and climbs about the underwood with great rapidity, and is found in the thickest parts of saul jungle.

49. *BUCCERUS MALABARICUS*. *Malabar Hornbill*? Male. Length of bill 7 inches; of excrescence 8; from maxillary angle to end of tail 2 feet 3, of which, tail 1 foot 1; from tip to tip of wings, 3 feet 2. Bill pale yellow, excrescence or horn black, with a broad lateral irregular line of yellow, occupying nearly the whole of it; pale, livid-fleshy patch on the base of lower mandible; eyelids ciliated, eyes scarlet; feet iron-grey, tarsi strong, thick, short, and scutellated; from sternum downwards, and all the feathers of the tail (except the two centre ones) white; rest of plumage shining metallic black.

These birds were very common in all the more open and large timbered spaces in the jungles, frequenting in preference the píepal trees, the berry of which forms their principal food. The young continue with the parent birds for many months, after leaving the nest; hence these hornbills are generally met traversing the forest in flocks of eight or ten. They are shy and wary, and the voice loud, clanging, and harsh. The horn is not developed till after the first year, the nestlings having the bill plain and without any trace of excrescence. These birds are never met with in the high rocky lands, nor in the barren tracts of saul jungle, but abound in the rich meadows composing the valley of the Subonrika, where the country in many parts has the appearance of a well-cultured English park.

50. *B. GINGIANUS*. *Gingi Hornbill*. Very common in the same haunts as the foregoing, and well known throughout India.

51. *BUCCO LINRATA*. *Hackled Barbet*, T. Male. Length 9 inches; shape and manners of *B. Lathamii*, (the well known green species.) Bill

and base space round eyes orange ; eyes grey, feet horn ; head and neck as far as breast, and back, brown with light shafts ; the feathers narrow and pointed ; rest bright green, pale on belly.

52. TROGON DUVAUCELII. Duvaucel's *Curucui*, Vaillant. This most elegant subject is described in Cuvier. The solitary specimen seen was killed near Dampára, Dholbhúm. It frequents the thickest jungle at the bottom of ravines and dried rocky nalas, flying from tree to tree, with a wild querulous note, like the mewing of a cat. It pursues and catches insects on the wing, like the Muscipææ : the stomach of the present specimen was crammed with them. The bright and glowing colors of this bird seem little suited to the gloomy depths which are its resort. Those abodes of everlasting shade, where the meridian sun barely penetrates, overhanging arches of vegetation, and which are inhabited by undisturbed flocks of bats, owls, and night-jars, afford a striking exception to the general rules of nature, which has clothed in sombre garbs "the birds that shun the light," by harbouring so beautiful a tenant as the *Curucui*.

53. CAPRIMULGUS ALBONOTATUS. *Dampára Night-jar*, T. Male and female alike, larger than the common English night-jar, which it closely resembles ; the plumage is greyer however, and it is distinguished by a large patch of white on the neck, two or three on the tertials, and on the outer feathers of the tail. It is extremely common in the jungles, keeping in thickets during the day, and coming out as evening sets in, to the open parts, grass plains, and *khéts*, which it skims over with a low silent flight. When on the wing it emits a low chirp, something like a sparrow. It has another and very peculiar note, when seated on the top of some decayed tree, and which on a calm night may be heard for a mile, sounding as if some one was striking a plank with a hammer deliberately.

54. HIRUNDO CORONATA. *Dhudka Swallow*, T. (*H. Cristata* of Le Vaillant?) Male. Length 8 inches, 1 ft. 1 across the wings ; cheeks and base of lower mandible chesnut ; from eye to bill, black space ; head adorned with a pointed, erectile crest, of a bluish clear grey, as are the upper parts ; breast and belly do. paler ; wings and tail glossy black with green reflections ; eyes, legs, and bill dark. The female has a smaller crest, and instead of the chesnut mark on the face, a black patch, bordered below with a white line. They fly in large flocks, but are partially met with hovering over the marshy spaces in the jungles. The note resembles the monotonous "*kia, kia*" of the parrot. They disappear in those regions by the end of March, but I never could trace the direction of their flight.

55. *COLUMBA SYLVATICA*. *Great Jungle-Pigeon*, T. Length 13 inches. Eyes orange, feet rose-color, bill horny, bluish over the nostrils; head, breast, belly, a pale violaceous grey, with vinous tints; upper parts, wings, and tail, brilliant changeable-green, with purple and coppery reflections. Common in some parts. Preferring the open and large-timbered tracts. Wild and difficult of approach. They go generally in small parties of four or five. The voice is deep, and resembles groans. Sexes alike.

56. *C. AGRICOLA*. *Foxy-Pigeon*, T. Male. Length 11 inches; eyes orange; bill and feet lake; head, neck, and breast reddish vinous brown; forehead and belly ashy blue; back, coverts, and quills vinous chesnut, each feather centred dark brown; upper tail coverts iron-blue grey; tail dark-clouded brown, patch of black; white-edged feathers on each side the neck. Met with in open cultivated parts. Shy and difficult of approach.

57. *C. JAVANICA*. *Java Turtle?* Male. Length 8 inches; tarsi elongated as in the ground-turtle, nevertheless perches; tail short, rounded, fourth quill of primaries longest; crown, pale ashy-lilac, which extends along the back of the neck to the back; white patch over eyes, enclosing forehead; rest of head, neck, breast, and belly vinous-grey, with a rosy blush; some of the feathers of the back black, edged green; lower down a broad bar of brown, edged black and white above and below; upper tail coverts blue-grey, primaries dusky-brown; the rest of wings a deep brilliant green, flashing gold in various lights; tail black, outer feathers white with black tip; bill red, tipped black, eyes black, legs flesh-color. This most elegant and diminutive species haunts the most impervious parts of the jungle, and is seldom seen except in the cool of evening, when it repairs to the open parts of streams and meadows. Two specimens alone seen in the Jungle Mehals, one of which, the female, differed merely in having the green of the wings tarnished with copper.

58. The Stone or Norfolk Plover of Bewick, abounds in every open tract in the jungles, coming out to feed at night.

59. *RALLUS JAVANICUS*, T. (*Gallinula Javanica*, Horsf, Java.) Male. Size and shape of the *Parra ænea*; the claws however as in *Gallinula*. Eyes blood-red; bill pale green, with orange-colored ridge; nostrils pervious; whole upper parts, quills, and tail plain black, with greenish reflections on the coverts; belly, vent, under tail-coverts, dusky-red; inside of thighs dirty white, outside chesnut and dark-grey, legs dusky. A solitary specimen seen at Tumcharararo, in Borabhúm. Had the same haunts and manners as the common *Parra* of Bengal.

60. *PARRA ARATA*, T. Male. Size and shape of *P. ænea*. Eyes dark hazle; bill greenish horn, upper mandible darker, nostrils pervious; a flap of detached skin on the forehead, crown deep bay or dark chesnut; eyebrows light, face white; from the back of the head, along the nape of the neck, glossy purple-black, changing to lake and coppery purple towards back; throat and narrow strip in front, extending to middle of neck, white; rest of neck and breast pale buff; belly and vent white; back cupreous olive-green; upper tail coverts and tail a burnt copperish lake; primary and secondary quills black; tertials as back, partly fringed white; greater coverts black, smaller coverts and scapulars as back; outer side of thighs, black and white radiated; inner white, flanks black. Pretty common, in small marshy pools, overgrown with jungle.

A great variety of birds in addition to these, met with in the Jungle Mehals, might be added to the list already enumerated; but as they are indigenous to the whole or various parts of Hindustan, and have been described by former collectors, their insertion here would be a useless repetition. Ornithological research, which has made such extensive progress into the heart of America, Africa, and the comparatively unknown regions of Australia, has as yet had little insight into the productions of this country. especially in those parts which have not been more immediately located by Europeans. Many of the most rare and beautiful birds, inhabiting the Himálaya mountains and the adjoining forest in the Teraye, have been brought into notice by the talents and spirited researches of one or two gentlemen; but even supposing their exertions would make us eventually acquainted with every species found in those immense tracts, there yet would be left a wide blank in our acquisitions, so long as the extensive, unknown, and unvisited portions of the Jungleterry districts remained shut out from the inquiries of the naturalist. These regions, placed in a sensibly warmer latitude than the Nipal forest;—differing in soil, in altitude, in vegetable productions;—presenting ever to the eye an altered, a peculiar, appearance of scenery;—rendered in parts uninhabitable even to the half-humanized denizens of the jungles, from the influence of pestiferous exhalations, issuing more or less throughout the year from abysses, overgrown by rank vegetation, where the light of day seldom enters, and the cadaverous weeds, fixed in a stagnant atmosphere, never wave in the refreshing breeze;—afford asylums to the rarer and wilder animals of the forests, which few or no human footsteps have invaded. The Trogon or Curacui (No. 52), hitherto asserted as belonging alone to the interior of Africa, has been found here. The Hippopotamus, also exclusively consigned to Africa,

has been met with in the portion of jungle which extends into the Bhil country*. The Gour, a species of bull, which by its description (as taken from a young one) must be the noblest in appearance of all known animals, ranges the hilly portions of the jungles, defying pursuit. A snake, which by the testimony (exaggerated doubtless) of the natives, must equal in dimensions the pythons of antiquity, inhabits the low marshy recesses of the jungle. A flying squirrel, hitherto undescribed, is tolerably common; and lastly, from a casual glance I once caught of an animal, in the thick and high woods bordering the Gurum nala, near the valley of the Subonrika, it would be the corroboration of an anxious surmise, were after researches to establish the fact, that the *Orang Otang* is an inhabitant of these forests.

V.—*Note on the Fossil Bones discovered near Jabálpur.* By J. Prinsep,
Sec. As. Soc.

[Read at the Meeting of the 30th October.]

The last despatch from our zealous and disinterested contributor Doctor SPILSBURY puts it in our power to speak with some degree of precision of the nature of the fossil remains discovered by Captain SLEEMAN, and followed up by himself, in the neighbourhood of Jabálpur—a field, it must be remembered, that had been passed over by Captain FRANKLIN and other geologists without any suspicion of the existence of such treasures.

The despatch I allude to consists of a classified series of specimens of the strata wherein the bones were found imbedded, with references to a rough vertical section of the country. (Pl. xx. fig. 2.)

We observe that the low plains covered with jungle, at the foot of the hills in question, consist of sandstone lying upon granite, which protrudes in several places, as at A A A. towards the town.

Above the sandstone lies a conformable stratum of compact silicious limestone, which on solution in acids proves to be composed of grains of clear silex, united together by carbonate of lime, here and there tinged with chlorite, or holding nodules of that mineral imbedded; at other places, passing into pure quartz, and jasper conglomerate: no stratification is perceptible in the limestone, which seems rather to bear the character of a tufaceous deposit. At one place, E c, an oval

* I have been credibly informed of this, by several who witnessed the animals at a distance, and afterwards examined their foot-marks (their surmises being corroborated by the natives of the country.)