required a great deal of irritation and disturbance, till they actually struck, though by their movements and hissing noise they were always ready to shew their fierceness. They are nocturnal in their habit, and almost exclusively feed on insects.

**BATRACHIA.**

I have met with only four species:—

27. *Rana cyanophlyctis,* is generally distributed over the whole of Kachch; it is to be seen in almost every pool of fresh, and even partially brackish, water.

28. *Rana tigrina,* is much rarer. I only found it in a few secluded localities, such as hollows or caves along the banks of rivers. It is called *menuluk* which is, I think, the usual name for a frog.

29. *Rana limnochares,* Boie, (≡ *gracilis,* Wiegm.) was only met with once at Mandavi, near the sea in a pool of water between palm trees.

30. *Bufo melanostictus;* common.

**IV.—Notes on Reptiles, collected by Surgeon F. Day in Sind,—**

*by Dr. F. Stoliczka.*

The Reptiles, which I shall notice in the following pages, were collected by Dr. Day on his recent tour* in connection with the investigations regarding the fisheries in Sind. The country visited by Dr. Day lies chiefly along the right bank of the Indus between Karachi and Sakkar. At the latter place he was energetically assisted by the Civil Officer at the station, Mr. H. E. Watson. Although chiefly made at a rather unfavourable time of the year, the collection contains several very interesting species. Among the *Sauria* I may notice a new species of *Eremias,* the first as yet known from our Indian possessions; a second equally interesting species is Günther's *Trachelus megalonyx,* and a few others. Among the *Ophidia* I shall describe a new species of *Hydrophis,* and note some peculiarities in adult specimens of the rare *H. curvis,* both from Karachi. As regard several other species the record of accurate localities is important.

Among *Batrachia* the only frog in the collection is *R. cyanophlyctis,* some of the specimens measuring, however, fully three inches.

**SAURIA.**

2. *Acanthodactylus Cantoris,* Günther.

For an account of the variations in structure and colour, I refer to *Journ. A. S. B.* vol. xli, 1872, p. 91. Most of the specimens, (though not all), collected by Dr. Day have a comparatively longer snout, than those from the N. W. Provinces and the Panjáb, but other variations are quite the same in

* Between October and February, 1871-1872.
both. The nasals are usually very much swollen. The largest specimen measures 10 inches, the body being 3.2 inches; length of head 0.7 inches; breadth of same near its base very nearly 0.5 inches; fore-limb 1.2 inches; hind-limb very nearly 2 inches; fourth hind-toe 0.7 inches.


Body and tail moderately slender and rather depressed throughout; shields of head smooth, or very slightly rugose. Rostral small, just reaching to the top of the head; nostril between an upper and lower nasal, followed by a third very small shield, all three are much swollen; anterior frontal single, hexagonal; a pair of posterior frontals forming a short suture; vertical bell-shaped, obtusely angular in front and with concave sides; supraciliaries two on each side, separated from the supraciliary edge by a row of small granules, and from the postfrontals by a small triangular shield situated near the canthus rostralis. A pair of anterior occipitals, each irregularly pentagonal, narrow anteriorly, and forming a suture; median occipital smaller than either of the anterior ones, ovately quadrangular, with the short anterior angle wedged in between the two anterior occipitals, followed by another little shield, separating the post-occipitals, each of which is irregularly triangular. Two loreals, the anterior one elongate and very narrow, the posterior larger and triangular, and may almost with equal propriety be taken as an ante-ocular. There are nine or ten upper labials, the fifth and sixth being largest and under the orbit; 7–9 lower labials, the fifth or sixth the largest, and followed by very much smaller shields; five pairs of chin-shields, the three first pairs forming a suture; the fourth pair is the largest. Ear spacious, its upper anterior edge provided with a long narrow shield.

Scales above and on the sides of the body granular, equal, convex, smooth, and arranged in transverse series, there being about 45 of them in one row round the middle of the body. Scales on the upper side of the extremities also small, but slightly keeled; those on the tarsi and on the anterior flanks of the feet enlarged and nearly smooth, while on the tail they are all enlarged, very sharply keeled and arranged in rings. The throat is covered with small, smooth scales; the belly with eight rows of enlarged, trapezoid shields, one row on either side being situated at the edge. Hinder side of femora with very small granular scales, lower side of tibiae with large ones; one very large preanal shield surrounded above and at the sides by a row of smaller shields; 12-15 femoral pores on each side of the thigh, narrowly separated in the preanal region; scales on the lower side of the basal portion of the tail smooth, but further on keeled.

The lower eyelid is covered with granules, except in the middle where there are some distinctly enlarged flat shields. Fold in front of the shoulder well developed, but less distinct on the lower side, and nearly obsolete in the middle; its lower edge has eight scales.
General colour, above, olive, with a slight brown tinge; head with some indistinct blackish marks; back with four alternating series of white spots, accompanied by blackish spots, the outer series on the edge of back being in both cases the better developed one; sides with one or two series of pale spots margined with blackish; both the white and dark series of spots have the inclination of forming continuous bands; hinder side of thigh with a blackish stripe, and the tail with irregular dark marks; the entire lower side uniform whitish with a greenish tinge.

Total length of a perfect specimen 6.5 inches, the body being 2.1 inches. In the largest specimen the body is nearly 2.5 inches long, and the head 0.6 inch. The fore-limb, when laid forward, reaches midway between the eye and nostril, very rarely as far as the latter; and the hind-limb reaches the shoulder-fold, or half way between it and the ear. The toes on the fore-limb are rather short, but those of the hind-limb long and slender; on both they are sharply keeled below. I have examined five specimens of this interesting form, all are similarly coloured.

The species belongs to the section of Eremias with the gular fold attached in the middle of the throat, and with one large preanal shield; this group has been designated Meadina by Gray, but I hardly think that the characters are of such importance as would necessitate a generic separation; they are certainly variable in the different species of Eremias.

Externally, as regards structure, the present species only differs from Gymnops* by the presence of lower eyelids, and from Cabrita by the small, granular, smooth scales. It is the first Indian species of Eremias known, and belongs to the desert fauna of the Panjáb Province. In coloration it closely resembles the Chinese E. argus,† Peters, but it is a more slender form, and shews a somewhat different arrangement in the head shields.

4. Eublepharis macularius, (Blyth).

Anderson in Proc. Z. S., 1871, p. 163.

General coloration of adult pinkish yellow; a dark violet band on the neck, more or less extending on the head, two on the body, and a smaller one on sacral region; the whole of the upper side of the head and body marked besides with irregular blackish brown spots or marblings; tail similarly marbled, (reproduced, short, very stumpy, and not verticillate in the only specimen); sides of head and limbs above with smaller and fewer dark spots; below, uniform yellowish white.

This is, Dr. Day informs me, rather rare in Sind. He met with it only in one house at Shikarpūr. It is, he says, very fond of residing under a tatty that is kept wet during the hot weather. It is called Hun-kun, or

* Compare antea, p. 74.
bis-cobra by the Europeans, and has the misfortune (in common with the
tuktu, Gecko guttatus, of Barma) of being believed to be very poisonous.
Of course, there is not a shadow of truth in the different reports about caus-
ing death, but like the tuktu, it is, I dare say, ready to inflict a severe
bite to the aggressor.

In the young (the type of the species) the toes are comparatively longer,
than in E. Hardwickii, but the adult does not appear to exhibit any dif-
ference in this character from the latter species. Total length 634 inches,
head and body 4·64, head alone 1·2; fore-limb 1·44, hind-limb 1·65 inches.

5. HEMIDACTYLUIS COLEI, D. and B.
Vide Jour. A. S. B., xli, p. 98.—Not common.

6. EUPECES TENIOLATUS, Blyth.
Apparenty very rare, (antea, p. 75).

7. SPHENOCEPHALUS TRIDACTYLUIS, Blyth.
Rare; (antea, p. 76).

8. UROMASTIX HARDWICKII, Grey.
Very common; (antea, p. 81).


There are four specimens of this rare lizard in the collection form near
Sakkar, two young, one half grown, and one adult male.

Dr. Günther's specimen, which he rightly supposed to be from Afganistan,
was half grown, and there is very little to be added to the detailed de-
scription of the species.

The enlarged scales on the body in young and half grown specimens
become very marked on account of their bright yellow colour, but their size
is actually little larger than that of the other scales. All scales are keeled,
above and below, and arranged in tolerably distinct transverse series. In
the very young, there is a thin ridge of slightly enlarged scales below the eye
conspicuous, and a row of distinctly enlarged, yellow scales between the eye and
the ear; both these ridges become indistinct in the adult, which also in other
respects considerably differs from the young. The upper edge of the ear is
always well protected by overhanging spinous scales. In the adult male the pos-
terior end of the supraclavicular ridge is distinctly angular, though not spinous.
All the scales on the back, from the nape to the tail, are considerably larger
than those at the sides, and are provided with very sharp obliquely erect
points; on the paratoids and the nape they form a cluster of sharply erect
spines, there is, however, no trace of a nuchal or dorsal crest. On the belly
the keels on the scales generally are much worn off.

The following figures will show the variations in age:

<table>
<thead>
<tr>
<th>Age</th>
<th>Total length</th>
<th>Body length</th>
<th>Long rows of scales around the body</th>
<th>Transverse rows between the limbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Young</td>
<td>4 inches</td>
<td>1·5 inches</td>
<td>70</td>
<td>55</td>
</tr>
<tr>
<td>Half grown ♂</td>
<td>6 &quot;</td>
<td>2·5 &quot;</td>
<td>68</td>
<td>52</td>
</tr>
<tr>
<td>Adult ♂</td>
<td>11 &quot;</td>
<td>4 &quot;</td>
<td>74</td>
<td>60</td>
</tr>
</tbody>
</table>
The hind leg, when laid forward, reaches the nostril in the young, and the anterior edge of the eye in the adult. Upper labials vary in number from 35 to 41, they are less numerous in the adult. Males have a row of six or eight pores on the preanal edge, imperfectly separated in the middle by one shield.

**Coloration:** The young is greenish olive grey, with a dark band between the eyes, a few irregular brown spots on the occiput, with six blackish transverse bands from neck to base of tail, each band having along the centre of the back a yellowish, black edged spot, and two or three smaller ones at the sides; limbs indistinctly banded; tail with about sixteen dark bands, the first few have a central pale spot like those on the back; throat-fold at the side bluish black; a dark band from eye to ear; upper labials dusky. Below, whitish with irregular longitudinal dark stripes.—In the adolescent form the general colour is greenish brown, the dark cross bands become less distinct, but the vertebral spots are well marked, all the slightly larger scales are bright yellowish.—The adult male is dark olive, very densely speckled with dark yellow, the transverse dark bands very indistinct, except on the tail, and there is no trace to be seen of the yellow vertebral spots; labials pale yellow, streak below eye indistinct; throat, breast and sides of belly bright bluish, tinged with purple, particularly at the sides of the throat.

**OPHIDIA.**


This species frequents damp sandy localities among low vegetation, living during the day in holes or under stones, and feeding during the night chiefly on earthworms and nocturnal insects.—Apparently rare.

11. * Eryx johni*. Similar in habit to the last, but occurring in drier localities; it is called *Bimavi* in Sind.—Common.

12. * Zamenis ventrimaculatus*.

The specimens exactly agree with those noted from Kachh, (antea, p. 82). The snake appears to be very common.


Common in the Sakaar district; (antea, p. 83).


The krait is called *Pion*; the term, Dr. Day says, being derived from *pion*, to drink, as it is reputed by the natives to suck in, or drink, the breath of persons it finds asleep. It is a common snake.

16. * Echis carinata*, Schmld., known under the name of *Lhadi* (the female), or *kuppah* (the male), (see antea, p. 84).

17. * Hydrophis Damanus*, n. sp.

Head short and stumpy in the young, a little more elongate in advanced age, distinct from neck, which gradually increases in thickness towards the
middle of the body. Rostral one-third broader than high; each nasal somewhat larger than a frontal, which equals in size a supraorbital; vertical hexagonal, obtusely angular in front and much elongated and pointed behind, smaller than either of the two occipitals; one ante-, two post-oculars; seven upper labials, the third and fourth enter the orbit, the fourth is sometimes split in two, the penultimate is small, and the last one minute; temporals 2+3+ pl., the lower of the two anterior is only a detached portion of the labial; lower rostral very small, triangular; six lower labials, first three large, posterior three much smaller; two pairs of subequal chin-shields, either both are in contact, or the posterior are separated by a small shield; all the head shields above and at the sides are very minutely granulated. There are thirty-three series of somewhat elongate, subimbricate scales round the neck, but further one the scales become regularly hexagonal, a little higher than long, and are in 40-44 series round the middle of the body. There are 400-415 scales in a line between the angle of the mouth and the vent, and 52-56 in a longitudinal row along the tail, the terminal scale is moderately enlarged, but not forked. Each scale on the body has a minute central keel, and on the side of the tail the keels of the succeeding scales become continuous, forming thin ridges.

Ventral scales each with two short keels; they are 328-334 in number, anteriorly twice as large as the adjoining scales, but posteriorly their size considerably decreases, and many of them become split in two shields. Two pairs of preanal scales, the outer twice as large as the inner.

Head olive blackish, tinged with red, brightest on the lower side, an $\Omega$—shaped vermilion mark on the top of head, composed of more or less isolated spots, the upper convexity rests on the frontals, the lateral branches run along the supraocular edge, and the ends curve outward towards each angle of the mouth; this vermilion mark becomes rather obsolete with age.

Of two specimens the smaller one is 23 inches, of which the tail is a little above two, the body is moderately compressed, of almost equal height throughout, encircled with fifty-eight black rings, separated above, but united by a black line along the ventrals; the rings are only slightly contracted at the middle of the sides, being separated by narrower yellow bands; the tail has besides eight black rings, the terminal three or four confluent on the lower side, and the tip is entirely black.

Another more adult specimen is 27 inches, of which the tail is nearly 2.5; the body is in the middle twice as high as at the neck; there are forty-six transverse blackish rings on the body, and six round the tail; each ring is blackest along the back, contracted to nearly half its breadth at the middle of the sides, and from there to the broader base strongly tinged with yellow which is the general colour of the snake.

*Hab.*—Karachi; in tidal waters.
This species is evidently closely allied to the New Guinean \textit{H. Belcheri}, differing from it by the smaller number of scales on neck, the hexagonal ones on the body, keeled ventrals, and by its coloration. Another, as regards coloration almost identical, species is \textit{H. tuberculata}, Anderson, (Journ. A. S. B., xl. p. 18), but it has, thirty-eight rows of scales round the neck, two keels in a line on each scale, and several keels on each ventral.

The scales on the side of the body are also slightly more elongate, and there exists a noticeable difference in the arrangement of the labials, and the form of the head shields.


Two adult specimens, a male and a female, from near Karachi can not be separated from the above species:

<table>
<thead>
<tr>
<th>Total length</th>
<th>Tail length</th>
<th>Rows of scales</th>
<th>Scale between angle of mouth and vent.</th>
<th>Ventrals</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \delta )</td>
<td>34 1/2</td>
<td>36</td>
<td>34</td>
<td>221</td>
</tr>
<tr>
<td>( \varphi )</td>
<td>33</td>
<td>33</td>
<td>36</td>
<td>285</td>
</tr>
</tbody>
</table>

The male has a somewhat stronger and higher body than the female; the head is in both blunt and thick; the occipitals divided into several small shields; male with one postocular on one and two on the other side, female only with one postocular; third and fourth labials enter the orbit; the two pairs of chin-shields are separated from each other by several small shields. The scales are comparatively somewhat larger and fewer in the male, than they are in the female; each scale has a small central tubercular keel, and of the ventrals each has two. In the female the keels on the lower side are only a little larger than on the upper, but in the male they become regularly spinous along the whole of the underside, largest on the ventrals, attaining on the median ones a length of one tenth of an inch.

The coloration is very similar in both sexes: head olive above, with a yellow band from the eye to the neck; body in male with fifty, in the female with forty-eight transverse dark bands, separated by narrower yellow interspaces, more or less confluent along the back and tapering into a point towards the middle of the body; lower part of sides and along the belly uniform yellowish white; tail yellowish at base, dusky along the ridge, the terminal two-thirds of its length nearly entirely black.

The adult cannot be a very active snake, as the sides of the male are covered with a great number of small \textit{Balani}. Dr. Günther's largest specimen was only 17 inches and the only authenticated locality is, he says, Madras. Dr. Fayrer records, (in Calcutta Mad. Gazette, Feb. 1871), a specimen from the Orissa coast at Puri, and gives a description of the species on p. 22.


A specimen from Karachi has as many as forty-seven series of scales round the neck, and fifty-eight round the middle of the body, where they are hexagonal.

A young specimen is uniform yellow, tinged with dusky along the vertebral region; tail spotted and reticulated with black.

V.—Observations on Indian Batrachia,—by Dr. F. Stoliczka.

The author referred to several interesting points in the similarity of the structure of various species, particularly in connection with their geographical distribution.

The paper will appear shortly.

At the conclusion of the meeting, the President invited the attention of the members to one of Mr. Schwendler’s ‘Insulator and Joint Detectors,’ which had been manufactured on the principle explained before the Society in March, 1871.—(See Proceedings, 1871, p. 71).

Several of the members tested the apparatus, and satisfied themselves of its efficiency.

Mr. Schwendler stated that the instrument had already been introduced with the most gratifying results in India. One of the lines connecting Bombay and Surat contained so many defective insulators, as to reduce the insulation to about 0·5 Meg.-Ohms per mile, and render through communication with Karachi extremely imperfect. It was tested by the detector, and about 3% of the insulators were rejected, the effect being that the insulation per mile was increased sixty fold, or raised to 30 Meg.-Ohms per mile, as high an insulation resistance as can be expected from this line under existing circumstances.

Mr. Schwendler said he felt confident that this instrument would henceforth prove of the highest practical value in Telegraphy for maintaining the efficiency of Telegraph lines; and he was glad to be able to add that its portability and economy in use had been already acknowledged, and that the Italian Government had expressed their intention of introducing its use in Italy.

The President in laying before the meeting the first number of Part II, of the Journal for 1872, also drew the attention of the members to the slight alteration in the size which the Council have deemed advisable to adopt for the publications of the Society. He (the Pres.,) thought that the increased size greatly improved the appearance of the Journal, and that it was particularly advantageous for the larger space allotted to the illustrations on the plates.