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HERPETOLOGICAL NOTES.

No. 4.*

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The following paper contains a note on the status of *Typhlops leonhardi*; descriptions of new subspecies of lizards belonging to the genus *Lygosoma*; and general notes relating to snakes, lizards, and frogs in the Australian Museum reference collection.

OHPHIDIA.

Typhlops leonhardi Sternfeld.

Typhlops endoterus Waite, Rec. South Austr. Mus., i, 1, 1918, p. 32, fig. 24.

Typhlops leonhardi Sternfeld, Abhandl. Senck. Naturf. Ges., i, 3, 1919, p. 77.

Though I have not examined the types of either of the above blind snakes, Sternfeld's description of *T. leonhardi* agrees so perfectly with Waite's description and figure of *T. endoterus* that I am forced to regard them as synonymous. Waite had three specimens and Sternfeld five, all of which were collected in the Hermannsburg district, Finckh River, south of the MacDonnell Range, Central Australia.

Cerberus australis Gray.

An excellent example of this species, which is in a good state of preservation in the National Museum, Melbourne, was collected at Port Darwin, North Australia, on September 14, 1887. Though previously recorded from Port Essington and other parts of North Australia, this is the only specimen, to my knowledge, which is definitely from Part Darwin.

Stegonotus modestus Dumeril *et* Bibron.

A specimen bearing a label with the doubtful locality "Ripple Creek, Queensland ?" has been in the collection for a number of years, but, on account of the question mark, it could not be regarded as an Australian record.

This species was always regarded as being distributed throughout the Moluccas and Papuasia, the nearest locality to Australia being Murray Island, Torres Straits. Through the recent acquisition of two specimens collected at Rocky River, near Coen, Cape York, Queensland, it may now be regarded as an

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* For No. 3 see RECORDS OF THE AUSTRALIAN MUSEUM, XVIII, No. 5, 1931, pp. 267-70.

addition to the Australian herpetological fauna. Some characteristics of the Rocky River specimens are as follows:

Specimen A.—Rostral from above equal to about one-third its distance from the frontal, the latter shield being as broad as long, the length equalling its distance from the posterior border of the rostral. There are eight upper labials on the right side of the mouth, and seven on the left, there being a small one between the fourth and fifth on the right side. There are two preoculars and one postocular. Temporals 1 + 2. Ventrals 215; subcaudals in 81 pairs; scales in 17 rows; anal single.

Specimen B.—Rostral from above equal to one-third its distance from the frontal, the latter shield a little longer than broad, nearly as long as its distance from the end of the snout. Nine upper labials. There are two preocular and two postocular shields. Temporals 2 + 2. Ventrals 213; subcaudals in 82 pairs; scales in 17 rows; anal single.

A specimen from Ripple Creek, near Cardwell, Queensland, collected by A. J. Boyd in March, 1897, has the following characteristics: Rostral from above equal to about one-quarter the length of its distance from the frontal, which is as broad as long, and shorter than its distance from the posterior angle of the rostral. Nine upper labials. There are two preocular and two postocular shields. Temporals 2 + 3, or sometimes 2 + 3 + 3. Ventrals 233; subcaudals in 94 pairs; scales in 17 rows; anal single.

Demansia torquata Gray.

Previously recorded only from the north-eastern parts of Queensland, more particularly the coastal areas, this snake may now be placed among the more widely distributed species. One specimen, measuring 690 mm., was collected at Nappapirri, Cooper's Creek, south-western Queensland, by Dr. W. D. K. MacGillivray. Others in the collection are from the following localities: Percy Island, one; Mt. Morgan, one; Hughenden, central Queensland, two. These specimens range in length from 370 to 510 mm.

Except in size, the south-western specimen does not differ from the typical form. In the Mount Morgan specimen the frontal shield is almost as wide as the supraoculars, but in the others the frontal is strikingly narrow and elongated.

Notechis scutatus Peters.

A female specimen, measuring 800 mm. (tail mostly missing), was killed in Centennial Park, Sydney, on January 26, 1932. The oviducts contained nineteen undeveloped eggs. The stomach contained three young rats, *Rattus* sp., and one frog, *Hyla aurea*.

The specimen is exceptionally dark brown above, with the cross bands only on the anterior half of the body. The under surface is bluish, mottled with a darker shade posteriorly.

The Cowangie Mystery Snake.
Demansia textilis (?).

In January, 1928, the Rev. Walter Walters interested himself in the above, publishing his remarks in several Victorian country newspapers. These include the "Sunraysia Daily", "Ouyen Mail", and "Mallee Harvester". It was stated that

a number of naturalists had a suspicion that in the Mallee country of north-west Victoria, a new species of venomous snake had been discovered, when an unusually marked specimen, measuring five feet six inches, was killed, but unfortunately burned, by Mr. Alec McIntosh, of Cowangie. Later the remains of this specimen were exhumed by the Rev. Walters, who, after an examination, made a sketch of the head shields, subcaudals, and the colour pattern of the dorsal surface.

His figures show a small extra shield, interposed between the prefrontals, a narrow frontal, and single subcaudals. The specimen was a creamy colour, crossed with broad dark bands, about seven scales wide, while between each band were two narrow ones, each one scale wide, all being fairly evenly spaced.

Early in January, 1928, the problem was submitted to me for an opinion, but until quite recently I was not able to find any snake that would approach in colour and scalation the original one from Cowangie. In the National Museum, Melbourne, there is a specimen (Regd. No. R.11847), collected by Mr. D. Stewart at Cowangie, Victoria, on February 24, 1928. The head is black above and below, and the body markings are identical with those figured by the Rev. Walters, while there are 209 ventrals, 52 subcaudals, all divided, a divided anal, and scales in seventeen rows. This differs from the drawing made of the original specimen by having the subcaudals divided (a characteristic of the genus *Demansia*). If Rev. Walter's figure is correct, it would suggest that the snake belonged to the genus *Denisonia* or *Notechis*, but in the head shields and small scales it differs from both of these. I examined the specimen in the National Museum and found it to agree fairly well with *Demansia nuchalis*[1] in general characters, though in many ways it appeared intermediate between that and *D. textilis*.[2] The fact that the second Cowangie snake is identical in markings with the first, but has divided subcaudals instead of single ones, as figured by Rev. Walters, leads me to suspect that the exhumed specimen was so damaged that Walters may have been misled in regard to the subcaudals. The extra shield on the head is, of course, abnormal, such abnormal scales occurring only in an occasional individual.

A specimen received lately from Dr. W. D. K. MacGillivray, from Broken Hill, New South Wales, is apparently very closely related to the Cowangie snake. It has seventeen rows of scales, 207 ventrals, a divided anal, and 53 subcaudals. It will be noted that in this respect it is almost identical with Mr. Stewart's specimen. The markings differ only a little, the dark brown bands appear to be more widely spaced, and there are several one-scale-wide dark bands in the interspaces.

The head-shields of the Broken Hill specimen do not agree absolutely with the Cowangie specimen in the National Museum, nor do they quite agree with any other snake in the Australian Museum collection, but are much nearer *Demansia textilis*. This and several other intermediate specimens leads me to believe that some of the existing "species" of *Demansia* are merely subspecies, but it would be necessary to examine a large series to prove this. There are some characters which would indicate that the Broken Hill specimen is related to *D. guttata* Parker,[3] which also, in my opinion, is closely related to the Cowangie snake. Exactly to which species the latter belongs might remain a mystery for

[1] Boulenger.—Brit. Mus. Cat. Snakes, III, 1896, p. 326.
[2] Boulenger.—*Loc. cit.*, p. 325.
[3] Parker.—Ann. Mag. Nat. Hist., (9) XVII, 1926, p. 668.

some time, particularly because of the subcaudals being described (from a much deteriorated, exhumed specimen) as single. Possibly there are specimens in other Australian museums, and an examination of them by the authorities should do much to solve the problem. Owing to the great variability and very wide distribution of *D. textilis* and its varieties, I feel fairly confident that the "Cowangie Mystery Snake" is either a colour variety or a subspecies of *D. textilis*.

LACERTILIA.

Lygosoma (Hinulia) isolepis foresti, subsp. nov.

An examination reveals the following characters, which distinguish this from the typical *L. isolepis*.

The adpressed limbs fail to meet by a distance equal to the length of forearm. The distance between snout and forelimb is contained twice in the distance between forelimb and groin. Ear opening as large as eye opening. Seven upper labials, fifth below eye. Two pairs nuchals. Twenty-eight scales round the body. Twenty lamellæ under fourth toe, basal five divided. Preanals not greatly enlarged.

Colour.—Brownish above, two longitudinal broken lines formed by spots of irregular size, sides heavily spotted with brown, not nearly so dark as in *isolepis*. Scattered spots between shoulder and ear and on top of head. Under surfaces immaculate.

The total length of the specimen is 110 mm.

Locality.—Forest River, East Kimberley, Western Australia. Described from a single specimen collected in 1929 by L. Wood. Registered number, R.10001.

Lygosoma (Hinulia) tenuis intermedius, subsp. nov.

Although resembling *L. tenuis* closely, an examination of a splendid series of fourteen specimens revealed characters distinguishing it from the typical form.

The nuchals are more or less broken up; in some specimens the parietals are bordered by several large scales, with possibly one pair of nuchals behind them; one specimen has one distinct pair nuchals, others two or three pairs, three being the usual number. In several specimens the central row of scales (mid-dorsals) are distinctly broader than the others. In the whole series the laterals are distinctly the smallest.

Colour.—Pale brown above, more or less blotched with dark brown. Sides very dark brown, the majority of scales bearing one or more very small circular white dots. This lateral coloration extends from behind eye to base of tail, behind groin.

Holotype in Australian Museum. Reg. No. 6485.

Affinities.—This subspecies appears to be intermediate in characters and markings between *tamburinense* Lonnb. and And.,[4] *isolepis* Boul.,[5] and *tenue* Gray.[6] All the specimens differ from *isolepis* in not having divided lamellæ; from *tenue*

[4] Lönnberg and Anderson.—Handl. Kungl. Sven. Vet. Akad. Stock., LII, 7, 1915, p. 5.

[5] Boulenger.—Brit. Mus. Cat. Liz., III, 1887, p. 234, pl. xv, fig. 1.

[6] Boulenger.—*Loc. cit.*, p. 231.

in the presence and formation of nuchals, and from *tamburinense* in having 30 as against 32 rows of scales, and 17-20 lamellæ instead of 15. The colour of *tamburinense*, however, is evidently identical with that of some of my specimens. I have not had the opportunity of examining the types of any of these species, but suggest that *tamburinense* and *tenue* are eastern subspecies of *isolepis*.

Locality.—The specimens are all from the north coast of New South Wales. One from Richmond River, one from Ballina, Richmond, five from Clarence River, one from Dorrigo, one from East Dorrigo, and one locality unknown.

The specimens range in size from 110 to 204 mm.

Lygosoma (Hinulia) quoyi kosciuskoi, subsp. nov.

A very interesting series of four specimens, including both young and adult, from Mount Kosciusko, at altitudes varying from 3,000-7,000 feet. While the scalation varies very little from the typical *L. quoyi*,[7] the colour markings are very distinct. In the young specimens the prefrontals form a suture, but in one of the large specimens the point of contact can be seen only under a lens.

Interparietal slightly longer than fronto-parietal. Parietal does not form a suture behind interparietal (possibly abnormal). Fifth upper labial largest and below the eye. There are two pairs of nuchals present in the adult, behind large shields joining the parietal; nuchals absent in young. Ear opening not nearly as large as eye opening. There are from 36-38 scales round body, the ventrals being the largest. Adpressed limbs only just meet. Subdigital lamellæ divided, only 21 as against 27-32 in *quoyi*. Tail stout, not as long as head and body.

Colour.—Pale brown above, with three distinct longitudinal lines, the central one extending to base of tail. Lateral region heavily spotted and blotched with dark brown. A few scattered spots on head and ventral surfaces.

Holotype, regd. no., R.4654, in the Australian Museum. Total length, 150 mm., head 17 mm., body 78 mm., tail 72 mm., hind limb 25 mm., forelimb 18 mm.

The series ranges from 80-150 mm. in length.

In specimen no. R.4832, which is without locality, the head shields are abnormal: frontonasals semi-divided; internasals separated by a suture wider than that between rostral and frontonasal. Parietals are in contact behind interparietals. No nuchals. Eight large shields joining parietals. Twenty-two subdigital lamellæ. The other characters are normal. Length without tail, 75 mm.

Egernia luctuosa Peters.

An examination of three specimens shows them to differ slightly from the typical form in having the frontal as long as the interparietals and parietals combined. The colour markings also are very interesting. Dark blotches form somewhat regular longitudinal lines on the dorsal surface, the central one being broad though discontinuous anteriorly. In the light area bordering this line there is an indication of a narrow one on each side. Dark lines are more noticeable on the tail. The sides of the body are heavily blotched with dark markings intermixed with yellowish ones. A thick dark line extends from below the eye to the ear, below which is a yellow one, and another dark one from

[7] Boulenger.—*Loc. cit.*, p. 230.

the gape to the ear. There are a few dark blotches on the head. Under surface immaculate.

All three specimens measure 240 mm. in length.

Locality.—One of the specimens is from King George's Sound, which is the type locality. The other two are from Western Australia, but from which part it is not known.

Tympanocryptis lineata cephalus Günther.

Since F. R. Zietz[8] placed the above in the synonymy of *T. lineata* Peters,[9] authors have been inclined to accept his decision. I have just examined three specimens which could be identified as *T. cephalus*[10] and, while I agree with Zietz that the differences are hardly specific, I consider them important enough to justify retention of *cephalus* as a subspecies of *T. lineata.*

The head scales of *T. lineata* from the parietal region forward are undoubtedly, and without much variation, strongly keeled, some bearing spines, while those of *T. lineata cephalus* are flatter and rugose. One striking difference, which evidently has escaped the observation of previous workers, is the horizontal position of the nostril. While the original description defines the nostril in *cephalus* as being much nearer the eye than the snout, no measurements are given, and the matter becomes one of comparison and liable to variation, therefore the value of such a character may be more apparent than real.

In *cephalus* the nostril is situated on the actual ridge of a very broadly rounded and ill-defined canthus rostralis, whereas in *lineata* the canthus is sharply defined, with the nostril situated below the ridge. The cause of the broad and flat canthus in *cephalus* lies in the large rugose head shields, of which there are from six to seven rows across the snout between the nostrils. Contrary to this, in *lineata* the shields on the canthus are narrow, elongated, and keeled, thus forming a sharp ridge, while across the snout, between the nostrils, there might be eleven or twelve rows of scales, all of which are distinctly keeled. The dorsal and ventral scales are less strongly keeled in *cephalus* than in *lineata*, as has already been observed, but the character is liable to a little variation and had best be discounted at present, though, of course, in the two extremes it is very obvious.

Of the three specimens before me as I write, one is from Laverton, Western Australia, one from Western Australia (no definite locality), and one from Ardmore, north-western Queensland, collected by T. Hodge-Smith, December, 1930. It was during the examination of the latter that I became aware of the mistake that had been made in placing *cephalus* in the synonymy of *lineata.*

Though Ardmore, Queensland, is a considerable distance from the type and other localities in Western Australia, the country between is dry and very much of a sameness throughout, so possibly *cephalus* might be scattered over the whole of these central parts of the continent.

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[8] Zietz.—Rec. S. Austr. Mus., I, 3, 1920, p. 198.
[9] Boulenger.—Brit. Mus. Cat. Liz., I, 1885, p. 392.
[10] Boulenger.—*Loc. cit.*, p. 393, pl. xxxi, fig. 1.

Moloch horridus Gray.

The youngest and smallest specimen I have ever seen of this species, measuring only 50 mm., was recently presented to this Museum by Mr. H. Harris, who collected it at Southern Cross, Western Australia. Except in size it does not differ from the adult. An adult grows to about 212 mm., the biggest in our collection being 180 mm.

Habits.—The late Edgar R. Waite recorded that the Moloch inhabited the sandy regions of the interior of South and Western Australia, and that it was known to feed on small, strongly smelling, black ants, licking them up from their run-ways. The late W. Saville Kent estimated that between one and five thousand of these ants are consumed at a single meal.

It appears, from the observations of naturalists and others, that the Moloch will not eat anything except ants, and, as it is very partial to the small black one of the region it inhabits, it is very difficult to keep in captivity for any length of time.

Quite lately I learned from an observer that, though the tracks of Moloch were often to be seen in the sand, the lizards could not be found by him, nevertheless the aborigines could find them within a very short time. My informer told me that he tried to keep the Moloch in captivity but found that they would not eat anything, even ants, that were introduced to the compound. He then built an enclosure through which the special black ants swarmed along their runway, but the Moloch took up its stand where the ants entered the enclosure, and in eating a number of the leaders, broke the line, and the ants soon found a way round, thus avoiding the lizard.

BATRACHIA.

Limnodynastes tasmaniensis Günther.

This burrowing frog has been dug up from sandy or clay soil on many occasions, but never from any great depth. The following note which is attached to a specimen in the National Museum, Melbourne, and which was written by Mr. E. B. Heyne, of Richmond, to the late Prof. McCoy, on the 10th November, 1868, is of particular interest.

"A few days ago I learnt that whilst excavating a cellar in my immediate neighbourhood the labourers had dug out of the ground from a depth of from six to eight feet of soil, damp clayish, several frogs. I asked to be supplied with one to be submitted to you and received on Saturday the specimen which I have now the honour to present for your inspection. Though probably not new to you it may nevertheless be of interest as I can vouch for its having been found embedded in clay without any crevices, through which it might have entered, being perceptible in the soil."

Myobatrachus gouldii Gray.

Two very large specimens of this interesting burrowing toad were recently added to the collection, having been secured at Tambellup, south-western Australia, by Mr. F. R. Bradshaw in September, 1930. The locality is about 140 miles inland from Albany in the south, and 200 miles from the western coast. This is the farthest inland that the species has ever been taken. The collector stated that he had handled between fifteen and twenty specimens at different times ranging

in size from about 25 mm. to 50 mm., and all were obtained in sandy country. Only two specimens previously were in the Museum collection, and both were males measuring: length, 26 and 33 mm.; breadth, 20 and 25 mm.; head, 7 and 9 mm. Mr. Bradshaw's specimens measure: male, length, 44 mm., breadth, 31 mm., head, 11 mm.; female, length, 57 mm., breadth, 48 mm., head, 12 mm.

Hyla citropus Günther.

Two specimens, male and female, of this small tree frog were brought to me in a bag by Mr. W. E. Schevill, Museum of Comparative Zoology, Harvard, collected by him a few hours earlier in the day at Stanwell Park Creek on the south coast of New South Wales. He informed me that the male was quite brown, while the female was deep green. On opening the bag the female was found as described, but the male had changed from brown to a light pale foliage green, the following being the colour of the moment: eye golden, flecked with brown; dorsal surface light foliage green becoming paler on the sides. From the nostril along the canthus rostralis was a thin golden line, terminating on the anterior part of the upper eyelid. From the posterior to the eyelid the golden line was thicker and bordered with brown, extending over the shoulder to the side where it broke up into fine golden flecks, giving the appearance of having been splashed with gold paint. These flecks extended to the groin, a few being on the thigh, but they gradually ceased to exist as the ventral surface was reached. The under sides of the lower jaw were pale green, merging into greenish white on the throat. The belly was pale salmon and the anal area a rich brown. The groin and hinder sides of the thigh were rich reddish tan, bordered above by maroon. The armpits were yellowish tan bordered above by a darker shade. The female was coloured the same, but the green was a much darker shade, without any trace of olive or brown.

The male was gradually changing the colour of its back while I wrote, and when I had completed the description had turned olive brown, all within five minutes of being taken from the bag. At the time of collecting, January 27, 1932, the species was mating, which season appears to be the usual one, for in February, 1930, in company with Mr. Joseph Slevin of the California Academy of Sciences, and Mr. Melbourne Ward, I found the same species mating in a pond fed by a permanent spring at Hampton, near Jenolan Caves, N. S. Wales.

Hyla citropus[11] is somewhat closely related to *rubella*[12] and *dentata*,[13] but is not so widely distributed as either of these, and is without doubt the rarest of the three. Its distribution is usually cited as eastern Australia, but that term is far too sweeping. In the Museum collection are specimens from several localities within forty miles of Sydney, while J. J. Fletcher records it from the Blue Mountains between Springwood and Mount Wilson. I have found it at Hampton (4,000 feet), midway between Mount Victoria and Jenolan Caves. At Hampton many of the males were brownish and the females green, as previously described. Fletcher had in his collection three specimens from Aberfeldy, Victoria, a town in the coastal area, some 122 miles east of Melbourne. This is a long way out of the zone regarded as the habitat of *citropus* and I would suggest that the

[11] Boulenger.—Brit. Mus. Cat. Batrachia, III, 1882, p. 408.
[12] Boulenger.—*Loc. cit.*, p. 405.
[13] Boulenger.—*Loc. cit.*, p. 406.

specimens referred to belong to *H. dentata*. I think that the range of *H. citropus* extends from the county of Cumberland westward to the Blue Mountains, reaching the various localities from which they have been recorded *viâ* the Nepean and Grose River Gorge, and feeders to Mount Wilson on the northern side of the Great Western Railway, and *viâ* the Nepean and Warragamba Rivers, and through the Cox River to the Jamieson and Kanimbla Valleys on the southern side of the railway. By any of these, *H. citropus* could easily reach the central tablelands, and from there migrate along the streams of the western watershed, but it is not known just how far west they extend, probably not beyond the central tablelands.

Acknowledgments.—I wish to offer my sincere thanks to Mr. F. D. McCarthy for observations which assisted me greatly in the compilation of these notes; to Mr. W. Meliska, who kindly translated for me the whole of Dr. Sternfeld's paper on "Reptiles from Central Australia";[14] and to Mr. J. A. Kershaw, late director of the National Museum, Melbourne, who allowed me to examine many specimens in the herpetological collection of that institution.

[14] Sternfeld.—Abhandl. Senck. Naturf. Ges., I, 3, 1919, pp. 76-83.