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NOTES ON SOME MEXICAN OPHIDIANS

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THE following account is based upon a collection of miscellaneous genera and species of snakes secured by the authors in Mexico during the summer of 1934. The trip covered a period of ten weeks. Specimens were obtained in the states of Chihuahua, Durango, Coahuila, Zacatecas, Aguascalientes, Jalisco, San Luis Potosí, Nuevo León, and Tamaulipas. Most of the material is now in Dr. Edward H. Taylor's personal Mexican collection, to which catalogue numbers, with the exception of a few field numbers, refer.

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Thamnophis eques (Ruess)

The 2 specimens, Nos. 4998 and 4965, of this species were obtained July 22, 1934, near Belén, Jalisco.

SCUTELLATION AND PROPORTIONS

	4998	4965
Ventrals	156	159
Subcaudals	98	99
Supralabials	8-8	8-8
Infralabials	11-11	10-10
Scale rows	19-17	19-17
Tail divided by total length	0.284	0.287
Preoculars	1-1	1-1
Postoculars	2-3	3-3
Temporals	1+2	1+2

Thamnophis marcianus (Baird and Girard)

Ten individuals of this species were obtained: 1, No. 5418, 5 miles south of Juarez, Chihuahua, June 18, 1934; 8, Nos. 174, 177, 5319-22, 5419, and 5012, Río San Pedro, midway between Chihuahua and Naica, Chihuahua, June 22, 1934; 1, No. 5420, 5 miles north of Conejos, Durango, June 25, 1934.

In the entire series, ventrals average 157, with a maximum of 165 and minimum of 151. Subcaudals average 71; maximum, 85, minimum, 54. The average proportion of tail length divided by total length for the whole series is 0.21; maximum, 0.221, minimum, 0.195. Supralabials, 8-8, except in 1 specimen possessing 7-7. Infralabials apparently 10-10 normally, the variations 9-9, 11-11, and 12-12 occurring. Preoculars constantly 1-1. Postoculars, 4-4 (5 specimens), 3-4 (2), 3-3 (2), 2-3 (1) (Río San Pedro). Temporals vary 1+2, or 1+3, or a combination of these, one formula on one side and the other on the opposite side. Scale rows constantly 21-19-17.

Thamnophis megalops (Kennicott)

Nineteen specimens, Nos. 223, 5011-18, 5414-17, 5424-29, were collected at Río San Pedro, midway between Chihuahua and Naica, Chihuahua, on June 22, 1934.

These specimens represent a normal series. The ventral scutes average 163; maximum, 172, minimum, 156. Subcaudals average 83; maximum, 91, minimum, 72. The average proportion of the tail length divided by the total length for the whole series is 0.24; maximum, 0.26, minimum, 0.215. Supralabials, 8-8 (16 specimens), 9-9 (2), 7-9 (1). Infralabials 10-10 (8), 11-11 (8), 10-11 (1), 11-12 (1), 11-13 (1). Preoculars constantly 1-1. Postoculars, 3-3 (14), 3-4 (3), 3-5 (1), 4-5 (1). Temporal formula, 1+2 (11), 1+3 (6), 3+2 (1); one has 1+2 on the left side and 1+3 on the right side. The scale rows are, with a single exception, 21-19-17; the one has 21-23-21-19-17.

Thamnophis sauritus proximus (Say)

The 12 specimens of this form included in the collection are from 3 localities: 5 miles south of Monterrey, Nuevo León, July 31, 1934, Nos. 4999, 5000; 7 miles west of Ciudad Victoria, Tamaulipas, August 2, 1934, No. 5001; Hacienda la Clementina, 3 miles west of Forlón, Tamaulipas, August 8 to 11, 1934, Nos. 5002, 5003-5, 5006-10.

The variation exhibited is within known limits. The ventrals average 160; maximum, 161, minimum, 150. Subcaudals average 107; maximum, 110, minimum, 104. The average proportion of tail length divided by total length is 0.304; maximum, 0.317, minimum, 0.275. Supralabials, 8-8, with one exception, 9-9. Infralabials, 11-11 (6 specimens), 10-10 (4), 11-12 (2). Preoculars constantly 1-1. Postoculars, 3-3 with one exception, 2-3. Eight specimens have a temporal formula of 1+2; 3 specimens have 1+2 on one side of the head and 1+3 on the opposite side; 1 specimen has 1+3 on both sides. Dorsal scale rows constantly 19-17.

Natrix valida (Kennicott)

A single specimen, No. 5408, was obtained on the Río San Pedro, midway between the city of Chihuahua and Naica, Chihuahua, Mexico, June 22, 1934.

The specimen, an immature female, measures 203 mm. in total length and 48 mm. in tail length; dorsal scales in 21-17

rows; ventrals, 148; subcaudals, 74; loreals, 1-1; preoculars, 3-3; postoculars, 4-4; temporals, 1+3; supralabials, 8-8; infralabials, 10-10. The coloration agrees with that stated in Van Denburgh's (1922: 784) description.

Drymobius margaritiferus (Schlegel)

Three specimens were obtained: 1, No. 4609, 7 miles west of Ciudad Victoria, Tamaulipas, August 2, 1934; 2, Nos. 4610-11, at Hacienda la Clementina, 3 miles west of Forlón, Tamaulipas, August 5 and 8 respectively.

The scale counts of the individuals are as follows:

	4609	4610	4611
Ventrals	160	147	154
Subcaudals .....	....	....	119
Supralabials	9-9	9-9	9-9
Infralabials	11-12	11-11	11-11
Scale rows	17-15	17-15	17-15
Tail length divided by total length ..	....	....	0.314
Preoculars	1-1	1-1	1-1
Postoculars	2-2	2-2	2-2
Temporals	2+2	2+2	2+2

Masticophis flagellum flavigularis (Hallowell)

Two specimens were collected: 1, No. 5388, between Torreón and San Pedro, Coahuila, on June 29, 1934, and the other, No. 5387, on August 7, 1934, at Hacienda la Clementina, 3 miles west of Forlón, Tamaulipas.

The latter, a female of moderate size, agrees in coloration and structure with descriptions and with specimens from southern Texas compared with it.

The Coahuilan specimen, a male, is normal structurally, but varies so markedly in coloration that mention is warranted. In the preserved specimen the ground color is gray above, becoming lighter and brownish posteriorly. Anteriorly on the body each dorsal scale has a grayish brown streak along its center. In the mid-trunk region the streaks gradually diminish in size and regularity. Numerous indistinct brownish

crossbars are visible anteriorly above. The belly is a cream yellow, which gradually deepens to a light coral red on the tail and posterior part of the trunk. There is present on the anterior body region below, a pair of more or less parallel series of grayish brown blotches, which diminish in size posteriorly and diverge laterally on the ventral scutes in the mid-region. The cephalic scales are dark brown with light anterior margins. The chin is heavily mottled with gray-brown. There is a distinct grayish yellow transverse band on the neck region at the angles of the jaws.

This specimen agrees with the brief description of a specimen reported by Garman (1887: 9) from San Luis Potosí as *Coluber testaceus* Say, which form was made a synonym of *flavigularis* by Ortenburger (1928: 92). It is also undoubtedly similar to those reported by Bocourt (1890: 705) from Chi-huahua and Jalisco as *Bascanion flagelliformis testaceus*, also made a synonym of *flavigularis* by Ortenburger (1928: 92). These specimens apparently exhibit a tendency toward the spotted coloration of *Masticophis lineatus* (Bocourt), a view which agrees with Ortenburger's idea that *flavigularis* is the parent stock from which *lineatus* has been derived.

Masticophis taeniatus girardi (Stejneger and Barbour)

A specimen, No. 5437, was captured 4 miles west of La Colorado, Zacatecas, on July 10, 1934. It was discovered basking

	5437	Normal (after Ortenburger)
Tail length divided by total length..	0.319	0.309-0.325
Head width divided by head length.	0.507	0.422
Ventrals	203	200-209
Caudals	146	132-160
Supralabials	7	8
Supralabials entering orbit	3, 4	4, 5
Infralabials	9	9 (10)
Temporals	3+2+2	2+2+2
Scale rows	17, 15, 13, 12	15, 13, 12
Rows lost in decrease	4, 5, median	4, median

in the sun in the top branches of a low bush. Peculiarly enough, it remained motionless while one of us cautiously approached, and, with a sudden lunge, grabbed the snake before it could take alarm.

This specimen, a male, 1785 mm. in length, exhibits some structural departures from the known range of variation as given by Ortenburger (1928: 35-41).

In hemipenial characters there is no variation from the normal condition except that on the medial surfaces of the organs a small accessory basal spine is present. In dentition the palatine and maxillary series are normal, but the pterygoid teeth number 22 and the dentary, 23, as compared with the constant 25 and 24-25 respectively of the normal. The specimen is intermediate in this respect between *girardi* and *taeniatas*; in the latter, pterygoid teeth, 22-23, dentary teeth, 21-22.

The coloration agrees in most respects with that given by Ortenburger (1928: 35-41). The greatest difference in pattern is found in the length and width of the light transverse bands. There is slight, if any, indication of light-colored margins on the cephalic scales.

Elaphe laeta (Baird and Girard)

One, No. 4682, of the 3 specimens was obtained 10 miles south of Chihuahua, Chihuahua, June 22, 1934; 1, No. 4683, 10 miles south of Monterrey, Nuevo León, August 1, 1934; and 1, No. 4684, at Hacienda la Clementina, 3 miles west of Forlón, Tamaulipas, August 10, 1934.

	4682	4683	4684
Ventrals	224	205	221
Caudals .....	....	83	....
Supralabials	9-9	8-8	8-8
Infralabials	13-13	13-13	12-12
Scale rows	27-21	29-21	27-21
Tail length divided by total length ..	....	0.218	....
Preoculars	1-1	1-1	1-1
Postoculars	2-2	2-2	2-2
Temporals	2+3	2+3	2+3

A study of the published descriptions of the scutellation and coloration shows these specimens to be within the known range of variation.

Pituophis deppei deppei (Duméril and Bibron)

Two specimens of sorts were collected: 1, No. 1108, a skin, was purchased from a man at Belén, Jalisco, July 22, 1934; the other, No. 5379, was picked up dead on the road 10 miles east of Aguascalientes, Aguascalientes, on July 23, 1934.

The following gives such definite scale characters as can be determined from the incomplete skin and the badly mutilated specimen:

	5379	1108
Ventrals	219	....
Caudals	60	....
Supralabials	8-8	8-8
Infralabials	11-11	10-10
Scale rows	27-25-23	27-25-23
Tail length divided by total length	0.13	....
Postoculars	3	2-2
Temporals	3+4	....
Dorsal blotches	43	....

In coloration both specimens agreed with the description given by Bocourt (1888: 666).

Pituophis sayi sayi (Schlegel)

One specimen, No. 5448, was captured crossing the road on the night of August 16, 1934, 3 miles west of Sabinas Hidalgo, Nuevo León.

This specimen, a female, agrees in coloration and scutellation with available descriptions. Ventrals, 230; subcaudals, 55; supralabials, 9-9; infralabials, 13-13; preoculars, 1-1; postoculars, 4-5; temporals, 3+4; scales in 29-27 rows; proportion of tail length divided by total length, 0.66. The middorsal blotches number 39 on the trunk and 8 on the tail.

Rhinocheilus lecontei Baird and Girard

One specimen, No. 310, was secured early in the evening of June 26, 1934, on the banks of a flooded arroyo 5 miles north of Conejos, Durango.

The scale characters of this specimen, a male, are as follows: scale rows, 23-19; ventrals, 198; subcaudals, 42 single and 13 divided; preoculars, 1-1; postoculars, 2-2; temporals, 2+3, 2+3; supralabials, 8-8; infralabials, 9-9. Total length, 744 mm.; tail, 112 mm.

The snout is yellowish, the scales with black outlines. Back of this the head and neck regions are black, spotted with yellow. A series of 37 large black blotches, 5-6 scales in length, extends across the back on body and tail; the twenty-seventh of the blotches is opposite the anus; they are pointed on the sides and extend to the lateral margins of the ventral scales; the intervals between, 3-4 scales in length, are reddish and are continuous with the yellow on the sides and belly. The lateral scales within the dark blotches have yellow centers, while those in the light interspaces have black centers. A series of small, indefinitely outlined black blotches occur on the sides midway between the pointed lateral extensions of the dorsal blotches. The belly is immaculate.

Sonora episcopa (Kennicott)

A single specimen, No. 4681, was collected beneath a rock on the slope of a small hill 20 miles south of the city of Chihuahua, Chihuahua, Mexico, on June 22, 1934.

This individual measures 214 mm. in total length, of which 49 mm. constitutes the tail; scale rows, 15-14; ventral scales, 148; anal divided; subcaudals, 56; rostral normal; a single loreal; preoculars, 1-1; postoculars, 2-2; temporals, 1+2; supralabials, 7-7; infralabials, 7-7.

Head uniform blackish above, supralabials light, belly immaculate white. The dorsal scales are marked with a brownish central spot in each, with pinkish margins. These spots appear to form longitudinal lines. A well-defined middorsal stripe of pinkish orange extends from the nape posteriorly.

In referring this longitudinally striped ground snake to the species *episcopa* we have followed Klauber (1931: 38).

Heterodon nasicus kennerlyi (Kennicott)

A single male specimen, No. 815, collected 5 miles south of Cañitas, Zacatecas, July 11, 1934, is referred to this subspecies. The specimen measures 307.5 mm. from snout to anus and 64 mm. from anus to tip of tail. Dorsal scales in 23-19 rows; ventrals, 134; subcaudals, 42; 11 scales around the orbit, representing the pre-, sub-, post-, and supraocular series; rostral and 2 small scales (divided azygous) separate the internasals; 2 scales, each much larger than either section of the azygous, behind the latter, separating prefrontals; supralabials, 8-8; infralabials, 10-10; genials in 2 pairs, the posterior pair much reduced; temporals numerous, 4 in first row; 1 small loreal, restricted above by the nasals and preoculars, which are in contact.

In coloration this specimen agrees perfectly with Cope's (1900: 773) description of *kennerlyi*.

This subspecies differs from *nasicus nasicus* chiefly in having a smaller number of scales around the azygous and a single, usually much reduced loreal. Of the 43 specimens of *nasicus* in the Museum of Zoology, University of Michigan, 5 seem to belong to this form. In these the azygous scale is absent in 1; accessory scales 2 to 6: 2 (1), 3 (1), 4 (1), 5 (1), 6 (1), loreals none or 1: none, 2; 1 (3); internasals in contact with rostral in all.

In the 38 *nasicus nasicus*, the azygous is present, although greatly reduced in size; accessory scales, 8 to 19: 8 (1), South Dakota; 9 (2), North Dakota and Nebraska; 10 (5); 11 (8); 12 (2); 13 (7); 14 (4); 15 (5); 17 (1); 18 (1); 19 (1); loreals, 1 to 5: 1 (14); 2 (45); 3 (12); 4 (4); 5 (1); internasals in contact with rostral in 2.

The 5 specimens of *nasicus kennerlyi* are from 12 miles southeast of Dos Cabezas, Wilcox, Arizona; Deming, New Mexico; Fort Davis, western Texas; and San Luis Potosí, Mexico, between Charcas and Venado. The specimens of *nasicus nasi-*

cus are from southern and northern Texas, 8 miles west of Hebronville, 6 miles east of Tule Canyon, Swisher County, Oklahoma (2), Kansas (3), Nebraska (6), South Dakota (3), North Dakota (6), Indiana (1), Iowa (6), Colorado (6), and Montana (3).

The range of *nasicus kennerlyi* as depicted is southwestern Texas, southern New Mexico, southern Arizona, south through northern Mexico to central Zacatecas and central San Luis Potosí. The records given by Cope (1900: 774) extend the range southward along the Rio Grande.

Leptodeira torquata Günther

One specimen, No. 1517, was obtained on August 8, 1934, at Hacienda la Clementina, 3 miles west of Forlón, Tamaulipas.

The scutellation is as follows: ventrals, 159; subcaudals, in double series, 59; supralabials, 8-8, the fourth and fifth in contact with the eye; infralabials, 11-11, the anterior 5 pairs bordering the anterior chin shields; 1 preocular, above a small subocular; postoculars, 2-2; temporals, 1+2 on left side, 1+3 on right; scale rows, 21-19; tail length divided by total length, 0.18.

The color above is grayish yellow, with a dorsal series of dark brown blotches, which in places are divided, forming a double series of alternating dorsal spots; 2 alternating series of small dark brown spots on sides; a wide, dark brown band on nape, preceded by a yellowish collar; a dark brown band present on either side of head, passing posteriorly through eye; head brown above; supralabials light; chin finely mottled with brown; lower parts white.

Although complete data have not been offered by Dunn (1936) in support of his conclusion that *Hypsiglena* is a highly artificial genus composed of derivatives from several ancestral stocks of *Leptodeira*, his conclusions are here adopted.

It is notable that the ventral and caudal scale counts of this specimen are not within the range of variation given by Dunn (1936: 691) for the species to which the specimen is assigned. Moreover, the specimen is far out of the range as presented by

Dunn, and well within the range as outlined for *torquata ochrorhyncha*. However, the number of scale rows and coloration of the specimen above described is identical with that of *torquata*, and its ventral and caudal scale counts approach more closely the range of variation in *torquata* than in *ochrorhyncha*.

Leptodeira maculata (Hallowell)

Three specimens, Nos. 4638-40, were collected at Hacienda la Clementina, 3 miles west of Forlón, Tamaulipas, on August 8 to 11, 1934.

The scutellation and proportions of these specimens are:

	4638	4639	4640
Ventrals	170	171	172
Caudals	63	59	62
Supralabials	8-8	8-8	8-8
Infralabials	10-10	10-10	10-10
Scale rows	23-19	23-17	23-17
Tail length divided by total length	0.201	0.189	0.188
Preoculars	2-2	2-2	2-2
Postoculars	2-2	2-2	2-2
Temporals	1+2	1+2	1+2

The ranges of *L. maculata* and *L. septentrionalis*, as here found, overlap; intergradation has not been found in this small series, and the forms are easily distinguishable. *L. maculata* is a relatively heavier, shorter form than *L. septentrionalis*. The belly is immaculate white, whereas in the latter the ventral scutes have a yellowish tinge and are heavily stippled laterally with brown. The dorsal blotches of *maculata* become confluent posteriorly to form a crisscross pattern. This is not apparent in the dorsal markings of *septentrionalis*. Also in *maculata* small lateral spots alternating with the dorsal blotches are evident anteriorly. In *septentrionalis* these lateral spots are apparent only on the posterior body region and tail.

Dunn (1936) considers *maculata* a subspecies of *septentrionalis*. As no data are presented in support of this conclusion,

and since specimens of both forms are recorded by Dunn from Zacuáltipan, Hidalgo, and are here reported from a locality in Tamaulipas, it appears strongly probable that the forms do not intergrade.

Leptodeira septentrionalis (Kennicott)

One specimen, No. 4615, was collected 7 miles west of Ciudad Victoria, Tamaulipas, Mexico, August 2, 1934, and another, No. 4616, at Hacienda la Clementina, 3 miles west of Forlón, Tamaulipas, on August 5, 1934.

	4615	4616
Ventrals	193	191
Caudals	79	81
Supralabials	8-8	8-8
Infralabials	10-10	10-10
Scale rows	21-23-15	21-23-15
Tail length divided by total length ...	0.225	0.215
Preoculars	3-3	3-3
Postoculars	2-2	2-2
Temporals	1+2+3	1+2+3

Coniophanes imperialis imperialis (Baird)

Three specimens, Nos. 4582-84, were collected at Hacienda la Clementina, 3 miles west of Forlón, Tamaulipas, August 7 to 9, 1934.

The 3 specimens have the following scale characters:

	4584	4682	4583
Ventrals	136	134	126
Caudals	35 (inc.)	32 (inc.)	59 (inc.)
Supralabials	8-8	8-8	8-8
Infralabials	9-9	9-9	9-9
Temporals	1+2	1+2	1+2
Scale rows	19-17	19-17-16	19-17
Preoculars	1-1	1-1	1-1
Postoculars	2-2	2-2	2-2

The general ground color above is brown. A dark brown stripe occupying the middorsal scale row and half of each adjacent row extends from the nuchal region posteriorly, to lose much of its distinctness behind the region of the vent. Dark brown lateral stripes occupy the first $3\frac{1}{2}$ scale rows on either side. These and the dorsal stripe join with the general dark brown of the head above. A narrow yellow line extends posteriorly from the superior margin of the orbit, traversing the anterior lateral corner of the parietal and passing through the temporal. A pair of yellow spots are present on the nape. The supralabials are light, finely stippled with brown. The underparts are white; fine dots are present on the chin; there is a fine stippling of brown on the lateral margins of the ventrals and subcaudals.

Crotalus cinereous Le Conte

One specimen, No. 5465, was collected at the side of the road 5 miles south of Gomez Farias, Coahuila, July 29, 1934.

Crotalus lepidus klauberi Gloyd

A single example, No. 271, was found under a stone on the side of a low, semiarid hill, 15 miles north of Escalón, Chihuahua, June 25, 1934.

Crotalus molossus nigrescens Gloyd

Ninety-six specimens, Nos. 734, 750, 753, 778, 785-6, 802, 805, 4780-4812, 4812A, 4813-4854, 5449, 5470, were secured in a canyon 4 miles west of La Colorada, Zacatecas, July 8, 1934, and 1 (No. 5452) was found near the road 10 miles north of Fresnillo, Zacatecas, July 11, 1934. The specimens from La Colorada are topotypes (3 specimens, now in the Museum of Zoology, University of Michigan, form the type series).

The specimens from La Colorada were found in a long, fairly steep-sided canyon, 50 to 100 feet deep. Near the upper rim was a ledge, and the sides were strewn with boulders fallen from the ledge. Trees and bushes were scattered in moderate abundance along the sides of the canyon. No specimens were

found in the lower part of the canyon, near the city, although more time was spent there than in the upper reaches. The first specimens were discovered when a female began rattling from her rest near the edge of a large rock. She immediately took refuge under the rock, which was then overturned. The sixteen young in the depression formed by the base of the rock began scattering in all directions. They were repeatedly raked back into the depression with a stick until they became fairly quiet. Then one was prodded out and caught; this process was repeated until all were safely bagged. We later caught several other females with their broods, sometimes accompanied by an adult male. All were found under large rocks just below the ledge or under the ledge proper. When the sun was high some of the adults were found sunning themselves near their retreats; none of the numerous young were found basking.

Crotalus scutulatus (Kennicott)

A single specimen, No. 309, was found dead in the road 5 miles south of Escalón, Chihuahua, in the state of Durango, June 25, 1934.

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