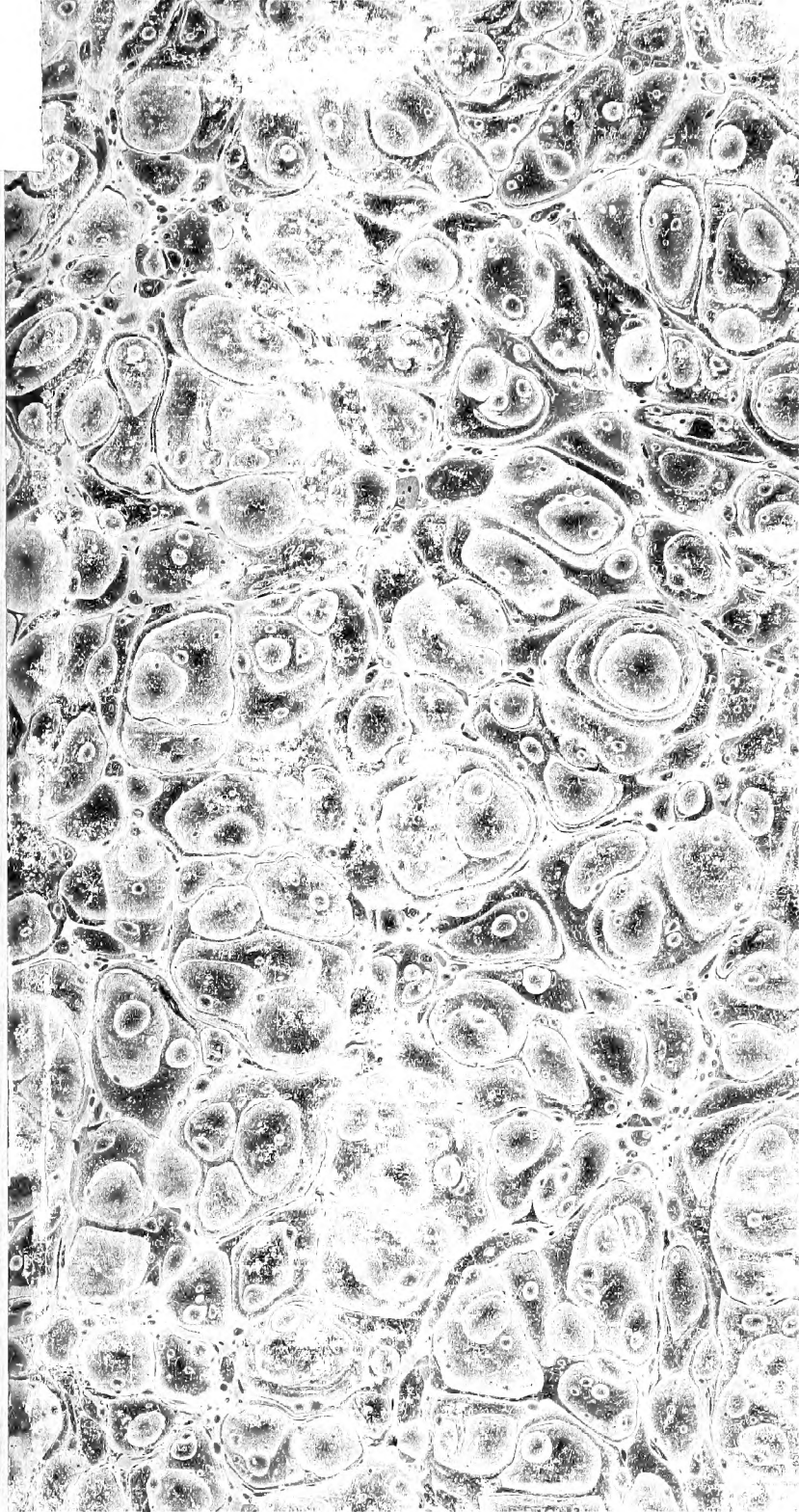


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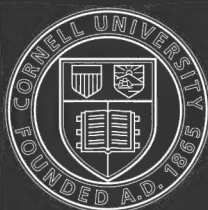
**ROBERT BAIRD McLAIN.**



WHEELING, W. VA.

FEBRUARY, 1899.





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# NOTES ON A COLLECTION OF REPTILES

Made by Mr. C. J. Pierson at Fort Smith, Arkansas, with  
Remarks on other Eastern Reptiles.

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ROBERT BAIRD McLAIN.

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The following is simply a faunal list, whose sole object is to add facts concerning the geographical distribution of the reptiles of the great central region of the United States that have not been mentioned heretofore. As the knowledge of the Eastern—that is east of the Rocky Mountains—reptiles is to-day much more meagre than that of the Western—West of the Rockies—reptiles, any list, either local or of a scattering nature, adds to our understanding of their ranges and relationships.

Most of the specimens enumerated in this list were collected by Mr. C. J. Pierson at Fort Smith, Arkansas, in 1896-97, and have since been presented by him to the Zoological Department of Stanford University. To these were added the specimens collected at different places over this region by different people and hitherto, as far as I know, have not been recorded.

My thanks are due to Mr. C. J. Pierson for permission to work up his collection, which lack of time prevented him from doing. Numbers are given of the specimens, both for confirmation of my statements and for future reference.

## ORDER. TESTUDINATA.

### FAMILY. TRIONYCHIDÆ.

1. *Amyda mutica* (LE SEUR). One specimen, whose carapace measured six inches in length (3767), was taken at Fort Smith, Arkansas.

2. *Aspidonectes spinifer* (LE SEUR). A small individual (1230) from Bloomington, Monroe county, Indiana.

### FAMILY. CHELYIIDÆ.

3. *Macrochelys lacertina* (SCHWEIGGER). One of these large "snapping turtles" was taken at Fort Smith, Arkansas, (3762), whose carapace was seven inches long.

### FAMILY. KINOSTERNIDÆ.

4. *Aromochelys odoratus* (LATREILLE). Two specimens are in the collection, one (1226) labeled "Southern Ill.," the other with no data.

### FAMILY. EMYDIDÆ.

5. *Malaclemmys geographicus* (LE SEUR). A small specimen (1227) came from Plano, Kendall county, Illinois, and another (1224), very young one, from "Ross Lake and Bloody Run, vicinity of Cincinnati, Ohio."

6. *Chelopus insculptus* (LE CONTE). A tortoise which I refer to this species (3763) came from Fort Smith, Arkansas.

7. *Terrepenne carolina* (LINNEUS). Two small specimens (1231-1232), evidently but recently hatched, are from Franklin county, Indiana.

FAMILY. TESTUDINÆ.

8. *Gopherus polyphemus* (DAUDIN). Three specimens (3764-3766, were procured at Fort Smith, Arkansas.

ORDER. SQUAMATA.

SUBORDER. SAURI.

FAMILY. IGUANIDÆ.

9. *Anolis principalis* (LINNEUS). Four of these little lizards (1100-1103) were collected by Dr. D. S. Jordan at Pensacola, Escambia county, Georgia. Dr. O. P. Hay presented the Department with a couple (3137-3138, from Artesia, Miss.

10. *Crotaphytus collaris* (SAY). A single individual (3741) is in the collection from Fort Smith, Arkansas. Mr. Pierson states that they are called "Mountain Boomer" in that locality.

The Department also owns two (1246, 1247) from La Junta, Otero county, Colorado, and two (1093, 1094) from the mountains near Little Rock, Pulaski county, Arkansas. In one of these—the latter—the interorbitals are in two rows, except in two of the scales; here there is but one row—the two evidently having fused.

11. *Holbrookia maculata* GIRARD. Two specimens which belong to this genus (1017, 1018) I will refer to this form, till the status of the various forms are definitely settled. These specimens are labeled "Pueblo, Pueblo county, Colorado."

12. *Sceloporus undulatus* (DAUDIN). A half dozen (3735-3740) were obtained by Mr. Pierson at Fort Smith, Arkansas. Dr. O. P. Hay presented two (324, 325) from Artesia, Mississippi, to the University collection.

13. *Sceloporus floridanus* BAIRD. Several of these (2189-2194) were collected by the Bramley Bros., at Waco, McLennan county, Texas.

FAMILY. ANGUIDÆ.

14. *Ophisaurus ventralis* (LINNEUS). Two "Glass snakes" from Illinois are in the collection, one (19) from Normal, McLean county, and the other (20) from Abingdon, Knox county. Mr. Pierson brought back three (3756, 4337, 4338) from Fort Smith, Ark.

FAMILY. TEIIDÆ.

15. *Cnemidophorus sexlineatus* (LINNEUS). Eleven of this species were taken at Fort Smith, Arkansas.

FAMILY. SCINCIDÆ.

16. *Eumeces fasciatus* (LINNEUS). Fifteen specimens were collected at Fort Smith, Arkansas, (3742, 3755, 3757).

One (3427) was taken at Anna, Illinois; two (2, 7) at Bloomington, Monroe county, Indiana, and another, presented by Dr. O. P. Hay (3410), at Artesia, Mississippi.

17. *Leiopisma laterale* (SAY). Several of these lizards (1095-1099) were collected at Pensacola, Escambia county, Florida.



SUBORDER.    SERPENTES  
FAMILY.      COLUBRIDÆ.

18. *Carphophiops vermis* (KENNICOTT). Mr. Pierson obtained two (4351, 4352) of these little snakes at Fort Smith, Arkansas. One (4029) is in the collection from Little Rock, Arkansas.
19. *Tantilla gracilis* BAIRD & GIRARD. Three specimens (4353, 4354, 4359) were secured at Fort Smith, Arkansas.
20. *Virginia valeriæ* BAIRD & GIRARD. A single specimen (4102) came from Franklin county, Indiana.
21. *Lampropeltis doliata* (LINNEUS). Three (4344-4346) were collected at Fort Smith, Arkansas.
22. *Lampropeltis doliata triangulata* (BOIE). Three of this species are in the collection, one (4009) from Greencastle, Indiana, and two (4172, 1803) from Bloomington, Monroe county, Indiana.
23. *Liopeltis vernalis* (DE KAY). Four of these snakes come from Illinois; three (4182-4184) from Normal, McLean county, and one (4107) from the vicinity of Chicago.
24. *Ophedryx æstivus* (LINNEUS). Two of these bright little snakes (4340, 4358) are from Fort Smith, Arkansas, while another (4019) is from Lawrenceburg, Indiana.
25. *Bascanion constrictor* (LINNEUS). The collection contains two, one (4333) from Fort Smith, Arkansas, and another (1630) from Normal, McLean county, Illinois.
26. *Bascanion flagellum* (SHAW). A large specimen (4360) was procured by Mr. Pierson at Fort Smith, Arkansas.
27. *Coluber spiloides* DUMERIL & BIBRON. One young specimen (4033) was taken at Bloomington, Illinois.
28. *Coluber obsoletus* SAY. A large specimen of this species [4334] comes from Fort Smith, Arkansas.
29. *Heterodon platyrhinus* (LATREILLE). Two [4331-4332] are from Fort Smith, Arkansas.
30. *Heterodon nasicus* (LINNEUS). One [4024] was taken in the vicinity of Springfield, Colorado.
31. *Thamnopsis sackenii* (KENNICOTT). Fort Smith, Ark., contributed three [4341-4343].
32. *Thamnopsis proxima* (SAY). This snake has been taken at [1733] Waco, McLennan county, Texas; [4030] Little Rock, Ark., and [4108] vicinity of Chicago, Ill.
33. *Natrix leberis* (LINNEUS). One individual [1802] from Camden, Carroll county, Indiana.
34. *Natrix rigida* (SAY). One [4010] was taken at Normal, McLean county, Illinois.
35. *Natrix fasciata pleuralis* COPE. A specimen of this rare sub-species was collected at Fort Smith, Ark., by Mr. Pierson. This is the fourth specimen taken, according to Prof. E. D. Cope,\* who gives two of the localities of former specimens as "Mississippi" and Augusta, Ga.

\*Proc. U. S. Nat. Mus., Vol. XIV., 1891, p. 672.

No. 4339 has twenty-two scale rows. Temporals 1-2, all large. Preoculars almost, but not quite touching the frontal. Oculars 1-3. Eight superior labials on each side. Middle of orbit above suture between 4th and 5th. Posterior genials longer than anterior ones. Five inferior labials in contact with anterior genials.

The general coloration is a dark blackish or dusky. The body is crossed by brown bands reaching to the gastrosteges and separated from each other laterally by a space wider than themselves. Dorsally these bands gradually become indistinguishable from the ground color. The gastrosteges have a confusion of brownish and blackish color, which forms itself into spots, anteriorly covering most of the light ground color, and on the urosteges this lighter shade becoming almost completely obliterated by the blackish and brownish coloration. Head and throat whitish below. Few spots anteriorly. Upper and lower labials black bordered. Head brownish, unmarked. The coloration is more evident when the specimen is in alcohol or water, and the bands appear to be broader dorsally, almost touching each other. Posteriorly, however, some are indistinct or may be absent.

36. *Natrix fasciata transversa* (HALLOWELL). Two [4347, 4349] were taken at Fort Smith, Arkansas.

I will offer no excuse for re-describing this and the following form. The color patterns are similar, but *N. rhombifera* appears to be but a negative of *N. f. transversa*, for where the present form is light the following form is dark, and visa versa.

My specimens of *N. f. transversa* have twenty-three scale rows. The ground color is light brownish, with large black quadrangular spots, with pointed ends, on the dorsal surface. These are separated from one another by narrow, light lines about the width of a single scale row. On the sides, lateral black spots alternate with the dorsals. These rows of black spots give the snake more of a black than a light general coloration. The lateral spots are separated by a light spot two or three scales wide. The head above is black; the first dorsal and lateral spots of the occiput are fused with it into one large black spot. Behind this the first and also the second may fuse with the lateral ones, forming saddles across the neck region. The gastrosteges may be narrowly edged with black.

37. *Natrix rhombifera* (HALLOWELL). As stated above, this snake is just the reverse in coloration to *N. f. transversa*. One [4350] has twenty-seven and the others [4348, 4357] have twenty-five scale rows. All were taken at Fort Smith, Ark.

Dorsally the large subquadrate spots are light brown, separated by a black line, one or two scales broad. The lateral spots are light brown and larger in proportion to the dorsal ones than the black lateral spots of *N. f. transversa*. The lateral light spaces are separated by a narrow black line about one scale broad. The connection between the dorsal and the lateral black spots is sometimes obscure or wanting; in this case they seem to fuse in some places. The pattern of the occiput appears to vary. The upper and lower labials both more or less distinctly edged with black. Gastrosteges spotted with black.

My observations being confined to five specimens, the scale formula will very likely be found to vary considerably more than noted here. I hope, however, that the above may help others to clear up any question in regard to these two forms whose exact relationships to each other are as yet not truly known. Until sufficient material has been collected, however, we cannot hope for any better results.

38. *Clonophis kirtlandii* (KENNICOTT). One specimen [4177] taken at Normal, McLean county, Illinois.

39. *Storeria dekayi* (HOLBROOK). A single one [4109] from the vicinity of Chicago, Ill.

40. *Haldea striatula* (LINNEUS). Two collected at Fort Smith, Arkansas, [4355, 4356].

FAMILY. CROTALIDÆ. . .

41. *Agkistrodon contortrix* (LINNEUS). One [4335] from Fort Smith, Ark., and two [4292, 4293] from Crockett, Texas.

42. *Agkistrodon piscivorus* (LACEPEDE). An individual taken at Fort Smith, Ark., [4336].

43. *Crotalus confluentus* SAY. A number [1815-1820, 4000-4002] of small ones are in the collection from Colorado Springs, Arapahoe county, Colorado. They are all labeled as embryos.









Contributions to North American Herpetology.

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CRITICAL NOTES

ON A

Collection of Reptiles,

FROM THE

Western Coast of the United States.

BY

ROBERT BAIRD McLAIN.

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WHEELING, W. VA.

FEBRUARY, 1899.







# Critical Notes on a Collection of Reptiles from the Western Coast of the United States.

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ROBERT BAIRD McLAIN.

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This paper was at first intended simply for a faunal list; giving the new localities from which our common reptiles were found, with the view of extending the geographical distribution of many of them. The writer, however, after spending over a year working with the Pacific Coast Reptilia, has had a number of things come under his notice which were of considerable importance, and in bringing them to the reader's attention this paper has lengthened itself and has taken on a more critical character. As the writer has examined most of the material used by Mr. Van Denburgh for his paper, "The Reptiles of the Pacific Coast and Great Basin," published as number five of the Occasional Papers of the California Academy of Sciences, it is safe to say that he feels better able to criticise this paper than any one who has not had access to this collection, and as the nature of these criticisms would not very well allow of a simple sketch such as a book review, the writer has incorporated the critical notes in the faunal list. Mr. Van Denburgh's paper is certainly one of the most important contributions to North American Herpetology that has appeared for some time. It set things aright and brings matters up to date for the region it covers, while though the manner of treatment is admirable, we cannot help noticing an apparent carelessness which crops out in places. The most noticeable of these are mentioned below, so that any errors may be looked into. Mr. Van Denburgh appears not to have been so very familiar with the collection and even not well acquainted with the catalogue in which the specimens were registered. My reasons for thinking so are, the large number of specimens that were in the collection and some that were registered in the catalogue, which the gentleman seems to have been entirely ignorant of, or else overlooked. In either case, it seems to point to an apparent neglect or carelessness.

Most of the new material in the collection was taken by Dr. C. H. Gilbert, Mr. J. O. Snyder, Mr. Geo. B. Culver and Mr. A. G. Maddren, in Northern California and Oregon, during the summer of 1897. My friend Mr. V. V. Clark presented the Department with a small collection from the Magdalena Mountains, near Kelly, New Mexico. Those specimens from Tempe, Arizona, were collected by Prof. W. W. Thoburn and Mr. John Mets. In all cases where possible the numbers of specimens are given, with the view of correct interpretation by the reader and to assist any future reviewer to verify my statements by the specimens themselves.

The following, as the preceding paper, is compiled from the notes made by the writer when he had access to the collection of the Zoological Department, Leland Stanford, Jr., University, as a student of that institution. This magnificent collection numbers over four thousand specimens and is without doubt the best one of West Coast

forms in this country. I wish to offer the thanks due my friends Mr. Edmund Heller and Mr. Dane Coolidge, both of whom kindly placed their collections—made during the summer of 1897, in Southern California—in my hands. Lastly, I wish to thank my friend Mr. Alfred G. Maddren for suggestions relating to this paper.

ORDER I. TESTUDINES.  
FAMILY TESTIDUNID.E.

1. *Clemmys marmorata* (BAIRD & GIRARD). Three specimens were taken by Mr. Heller in the Santa Ana River, at Riverside, Cal., during August, 1897. Mr. Rutter took two (3780, 3781) in Marin county, Cal., while Dr. C. H. Gilbert and Mr. Geo. B. Culver collected one [2782] on the Shasta River, near Montague, Cal.

2. *Gopherus agassizii* (COOPER). Three of these tortoises [3758-3860] were presented to the Zoological Department by Mr. Stewart Briggs. They are labeled "Desert" in the "region of San Bernardino," San Bernardino county, Cal.

ORDER II. SQUAMATA.

SUBORDER I. SAURI.

FAMILY IGUANID.E.

3. *Dipsosaurus dorsalis* (BAIRD & GIRARD). An individual [3699] from Tempe, Arizona, is in the collection, while one was collected at Warren's Wells, San Bernardino county, Cal., by Mr. Heller.

4. *Callisaurus ventralis* (HALLOWELL). Mr. Heller obtained seven of this species at Warren's Wells, San Bernardino county, Cal., and Mr. Coolidge a dozen at Cajon Pass, three miles west of San Bernardino, Cal.

5. *Holbrookia maculata* GIRARD. The collection contains several of this genus that are probably referable to this form. One [3721] from the Magdalena Mountains, Kelly, New Mexico, and several [1879-1891] from the vicinity of Clayton, Colfax county, New Mexico.

6. *Crotaphytus baileyi* STEJNIGER. The collection contains one individual [3723] from the Magdalena Mountains, Kelly, New Mexico.

7. *Crotaphytus wizlizenii* BAIRD & GIRARD. Seven of this species were collected at Warren's Wells, San Bernardino county, Cal., by Mr. Heller, during May, 1897. A number of unrecorded specimens from Idaho are contained in the Zoological Department. They are: [2758-2761, 2763-2765] Snake River, plains by Upper Salmon Falls; [2766] Plains on south side of Snake River, Salmon Falls; [2767] between Blue Lakes and Shoshone; [2770-2773] Plains between Bliss and Snake River; [2779-2783] Plains north of Snake River, between Upper Salmon Falls and Bliss; [2786-2789] Plains across river from Glenn's Ferry; [2819-2820] near Cottonwood Creek, Cassia county; [2829-2830] Glenn's Ferry, Idaho.

Mr. Coolidge obtained one at Oak Grove, San Diego county, Cal.

8. *Crotaphytus silus* STEJNIGER. This recently described form is represented in the University collection by two individuals, one [3046] taken at Bakersfield, Kern county, Cal., and the other [3616] collected by Mr. W. H. Osgood, at Livingston, Merced county, California.

Mr. Heller's collection contains one of this species from Riverside, Cal., taken in August, 1897. This is the first specimen that has been taken outside of the great central valley region in California.

Its presence west of the San Bernardino Mountains within the range of *C. wicklizenii* suggests that *C. silus* is only a sub-species of the former. Future collectors with additional specimens will perhaps be able to demonstrate this.

9. **Sauramaia ater DUMERIL.** The University possesses two specimens of this large lizard from Tempe, Arizona; one [3441] adult, and the other [3498] young. Mr. Heller found the "Chuck-walla" common at Warren's Wells, San Bernardino county, Cal., in May, 1897.

10. **Uta stansburiana BAIRD & GIRARD.** Among the large collection of this species the unrecorded ones are: [3435-3437] taken by Geo. B. Culver at White River, Tulare county, Cal.; [3361-3379] collected by R. E. Snodgrass at Ontario, San Bernardino county; [3174, 3380-3395, 3701-3704, 3599-3604] from Tempe, Arizona; [2769 and 2832] from "between Blue Lakes and Shoshone Falls; [2776-2778] Plains between Bliss and Snake River," and [2809 and 2815] "Sage brush plains, between Shoshone and Blue Lakes," in Logan county, Idaho.

Mr. Heller collected it in the San Bernardino Mountains in July, at Warren's in May, at Lytle Creek, Warren's ranch and Waterman's Canon, San Bernardino Mountains in San Bernardino county, and at Oak Grove, Descanso and Sorrento, in San Diego county, Cal., during the summer of 1897. Mr. Coolidge took a number in the Chihuahua Mountains, in San Diego county, and several at Grapeland, San Bernardino county, Cal.

11. **Sceloporus graciosus BAIRD & GIRARD.** Mr. Van Denburgh in his late paper, "The Reptiles of the Pacific Coast and Great Basin,"\* page 76, says: "This little lizard is a mountain dwelling species throughout its range in California, which extends the whole length of the State. It is very abundant in Hemet and Strawberry Valleys, in the San Jacinto mountains of Riverside county, † but has not been reported from any of the more northern coast ranges." Then in a foot note he records a specimen from Berryessa Valley, Napa county, California.

Now if the gentleman, who was apparently desirous of naming all known localities, was very well acquainted with the University collection or had taken the trouble to look over the catalogue, he would have found four specimens [2587, 2589, 2592, 2599] of this species from Fort Jones, Siskiyou county, Cal., collected by Mr. R. C. McGregor in 1894, which were in the collection long before his work was published. This is apparently pure carelessness, as on page 79 of his paper he records the specimens of *S. occidentalis* taken by Mr. McGregor at the same time and place. The *S. graciosus* have *S. occidentalis* intervening between them as the numbers indicate.

A number of this species from Northern California have recently been added to the collection. They come from [3674-3679] Gasquet's, Del Norte county; [3663] Philippsville, Humboldt county; [3651, 3654, 3656-3659] near State line on road from Crescent City, Del Norte county, Cal., to Grant's Pass, Ore.; [3626, 3633, 3635, 3637] Pyffe P. O., El Dorado county, Cal.; [3582-3586, 3588, 3590-3593, 3595, 3596, 3568-3571, 3573, 3575, 3577-3579] Garberville, Humboldt county, Cal.; [3534, 3536, 3537, 3539] Warm Springs Creek, near Skagg's Springs, Sonoma county; [3561] Mountain near Aetna Springs, Napa county; [3152-3154] near Delta, Shasta county, 600 feet above the railroad; [3135, 3136] thirty-six miles north of Redding, Shasta county, six or eight hundred feet above the railroad; and [3237, 3247, 3250-3256, 3258-3260, 3263, 3265-3286] Sisson's, Siskiyou county, Cal.

\* Occasional Papers Cal. Acad. Sci. V 1897.

† Italics mine.

Mr. Heller and Mr. Coolidge took a number of this species in the San Bernardino Mountains, San Bernardino county, Cal., during the summer of 1897. Several [3304, 3306-3308] have been taken at Hodgdon's, near Crocker's, Tuolumne county, and [3310-3313, 3515, 3516] between Wawona and Yosemite Valley, Cal.

Several of the following specimens have less than forty-six scale rows between the head and base of tail: [2775] Plains between Bliss and Snake River Idaho; [2802] Sage brush plain, near Conant, Cassia county, Idaho; [2810, 2814] Sage brush plains, between Shoshone and Blue Lakes, Idaho; and [2821, 2822] Blue Lakes Canon, Logan county, Idaho.

12 *Sceloporus occidentalis* BAIRD & GIRARD. The following key sums up, according to Mr. Van Denburgh,† the difference between *Sceloporus occidentalis* (Baird & Girard) and *Sceloporus biseriatus* (Hallowell):

"Males with a blue patch on each side of the throat, usually smaller..... *S. occidentalis*"

"Males with one blue patch on center of throat, usually larger..... *S. biseriatus*."

Later, on pages 82-83, he states that *S. biseriatus* "occupies the coast region south of the range of *Sceloporus occidentalis* and both slopes of the Sierra Nevada, together with portions of the San Joaquin Valley and the desert ranges farther east. How far north it lives on the western slope of the Sierra Nevada and where it meets *Sceloporus occidentalis*, we do not know. It doubtless occurs throughout the whole length of the Great Basin, for it is common in Idaho. Its vertical range in Central California extends up to about 8,000 feet."

The Zoological Department of Stanford University contains about 700 specimens, of which about 470 are the northern *occidentalis* and 330 the southern *biseriatus*.

Among the former, however, we find a number of specimens collected in Northern California which have but one throat spot. These are:

NUMBER.	LOCALITY.
3769 and 3770.	Quincy, Plumas county, Cal.
3532 and 3540.	Warm Springs Creek, near Skagg's Springs, Sonoma county, Cal.
3688.	Gasquet's, Del Norte county, Cal.
3559 and 3560.	Mountains near Aetna Springs, Napa county, Cal.
3548 and 3549.	Albion River, two miles below Comptche, Mendocino county, Cal.
3552 and 3555.	Navarro River, near Boonville Mendocino county, Cal.
3556 and 3557.	Knight's Valley Creek, near Kellogg, Sonoma county, Cal.
3567 and 3594.	Garberville, Humboldt county, Cal.
3695.	Along road between White Thorn and Garberville, Humboldt county, Cal.
3667 and 3666.	Road between White Thorn and Briceland, Humboldt county, Cal.

Mr. Van Denburgh states in a note on page 73 of his work: "I have examined many hundreds of *S. occidentalis* and *S. biseriatus* and have not found a male of the latter with two white throat patches. Highly colored males of *S. occidentalis* are sometimes found in which the two blue patches have extended to, and even merged on, the medium line, but by securing very young, or less brilliantly colored, males there should be no difficulty in determining which species occurs in a given locality, for such males never have a single

median patch if they belong with *S. occidentalis*, and never have two lateral patches if referable to *S. biseriatus*. Females of the latter species have either one or two blue patches, while those of the more northern form usually have two or none."

Now the specimens recently received and tabulated above all have distinctly a *single large spot on the throat*; which sometimes covers a greater part of the region under the head. Besides these there are a number "in which the two blue patches have extended to and even merged on the median line," and also others which show different variations of the blue on the throat. In some I regret to say the color has faded and would lend no evidence on either side. The black ventral coloration often present in the southern specimens is also seen in the northern ones. In regard to the northern females: a number of them in the collection have one spot upon the throat, as the males, and others have either two or none, while I found none of the southern females that had two distinct patches. The *S. biseriatus* form on the other hand have but one spot on the throat, in both males and females, and at the best have but an extremely slight line, not worthy of consideration, on the center of the throat. The collection of the Department of Zoology also contains others, which perhaps may have been among the "many hundreds" Mr. Van Denburgh examined, that have distinctly but one throat patch. They are tabulated below:

NUMBER.	LOCALITY.	MEASUREMENT.
3188, 3184 and 3186.	Hodgedon's Big Oak Flat, road near Crocker's, Tuolumne county, Cal.	
3205.	Anderson, Shasta county, Cal.	190 mm.
3207.	" " " " "	187 mm.
3233.	White River, Tulare county, Cal.	235 mm.
2231.	" " " " "	223 mm.
3224.	Near Merced, Merced county, Cal.	191 mm.
2749.	Fairbanks, Mendocino county, Cal.	181 mm.
3191, 3192, 3164 and 3195.	Klamath Falls, Ore.	
3155.	Sisson's, Siskiyou county, Cal.	
3208 and 3209.	San Joaquin Bridge, west of Lathrop, San Joaquin county, Cal.	
3203 and 3204.	Hogedon's, Tuolumne county, Cal.	
2737, 2740, 2744 and 2749.	Mendocino county, Cal.	
2059, 2061, 2111, 2065 and 2063.	Kelseyville, Lake county, Cal.	
2947, 2945 and 2952	Santa Rosa, Sonoma county, Cal.	
1959.	San Miguel, San Luis Obispo county, Cal.	
2582, 2584, 2579 and 2596.	Fort Jones, Siskiyou county, Cal.	
2051 and 2055.	San Anselmo, Marin county, Cal.	
2048.	Mt. St. Helena, Napa county, Cal.	
299	Calaveras Valley, Alameda county, Cal.	
1999.	Pescadero, San Mateo county, Cal.	
2080, 2081 and 2084.	Calistoga, Napa county, Cal.	
318.	Los Gatos Canon, Santa Clara county, Cal.	
302.	Canada Valley, Santa Clara county, Cal.	

A glance at the map of California will show that the *S. biseriatus* form not only "crosses Nevada to Utah and Idaho, and probably occurs in Eastern Oregon," but that it is seen by the specimens tabulated above to extend northward over the whole State of California. Along the coast it has been taken in San Luis Obispo, Santa Clara, San Mateo, Alameda, Marin, Sonoma, Napa, Lake, Mendocino, Humboldt and Del Norte counties. In the interior valley region it has been taken in Tulare, Merced, Tuolumne, San Joaquin, Plumas, Shasta and Siskiyou counties. If to these we add San Diego, Riverside, Los Angeles, San Bernardino, Inyo and Fresno counties, where it is more common, as well as Kern and Mariposa, which Mr. Van

Denburgh cites, we will find that our *biseriatus* form is found in nearly every county where any *Scelopori* have been collected.

Now as to the true status of the forms we would say that in the first place that the differences are so slight between them that it only lacked specimens showing that they intergraded to demonstrate that one form was but a sub-species of the other, but we now see that they not only intergrade but both have practically the same range in the State of California. "By securing very young, or less brilliantly colored, males there should be no difficulty in determining which species occurs in a given locality," Mr. Van Denburgh states as quoted above. However this may be, we were not aware heretofore that the validity of a species is ever based upon characters of immature specimens.

My understanding of the matter, according to the code of nomenclature now in use, is that a sub-species is a variation of a species over a certain definite range, and this being the case, a species can never extend over the same range as its sub-species, for if it did so the latter would not then be such, but only a variation within that species. Now here we certainly have not two distinct species, as the above tables and the intermediate material at hand will show, and as a species cannot possibly inhabit the same geographical area as its sub-species, then we have a single species with a wide range, and like all of these it has considerable variation.

Under this head we would speak of the measurements of the forms. Only six of the northern ones measured over 180 mm, while forty-five of the southern ones measured that or over. This is not to be wondered at however, as species distributed widely in a north and south direction often appear to vary considerably, being larger at one end of its range than at the other, according as the favorableness of the climate and environment seem to affect its growth.

The material at hand does not allow of a comparison with *S. undulatus*. The true relation *S. occidentalis* bears to this form is not yet settled, and as Dr. Stejneger states: "Under these circumstances nothing is gained by using a trinomial."

Baird & Girard described *Sceloporus occidentalis* in the Proc. Phila. Acad. Nat. Sci. VI., 1852. (type locality, "California, probably Oregon"), while Hallowell's *S. biseriatus* was not described until two years later, 1854, p. 93, in the same journal; (type locality, "Border of El Paso Creek and Tejon Valley, California"). Thus the former name will be seen to have priority, and this Californian species will hereafter stand as:

#### *Sceloporus occidentalis* BAIRD & GIRARD.

*Sceloporus occidentalis* BAIRD & GIRARD. Proc. Phila. Acad. Nat. Sci. VI., 1852, p. 175, and 1853, p. 301; GIRARD, U. S. Expl. Exped., Herpt. 1853, p. 383, pl. XIX, figs. 8-14; ? Pacific R. R. Surv., vol. X., 1859; STEJNEGER, North Amer. Fauna, No. 7, 1893, p. 186; VAN DENBURGH, Occ. Papers Cal. Acad. Sci. V., p. 77-80.

*Sceloporus frontalis* BAIRD & GIRARD. Proc. Acad. Nat. Sci. Phila. VI., 1852, p. 175; GIRARD, U. S. Expl. Exped., Herpt. 1853, p. 384, pl. XIX, figs. 1-7.

*Sceloporus biseriatus* HALLOWELL. Proc. Acad. Nat. Sci. Phila., 1854, p. 93, and U. S. Pac. R. R. Surv. Rept. X., pt. IV., 1859, p. 6, pls. VI., figs. 2a-2f, and VIII. BOCCOURT, Mission Sci. Mex. et dans l'Amer. Cent. 3re partie, 1874, p. 197, pl. XVIII. bis., fig. 10; STEJNEGER, North Amer. Fauna, No. 7, 1893, p. 184; VAN DENBURGH, Proc. Cal. Acad. Sci. V., 1897, pp. 80-84.

*Sceloporus biseriatus* var. *A. azureus* HALLOWELL. Proc. Acad. Nat. Sci. Phila. VI., 1854, p. 94.

\* North Amer. Fauna, No. 7, 1893, p. 187.

*Scleroporos biseriatus* var. *B*, *variegatus* HALLOWELL. Proc. Acad. Nat. Sci. Phila. VI., 1854, p. 94.

*Scloporos longipes* BAIRD. Proc. Acad. Nat. Sci. Phila., 1858, p. 234.

*Scloporos smaragdinus* COPE (non Bocourt). Wheeler's Surv. W. 100th Meridian, V., 1875, p. 572, pl. XXIV., figs. 2-2a.

*Scloporos undulatus undulatus* YARROW. Checklist North Amer. Rept and Batr. Bull. 24, U. S. Nat. Mus., 1882, p. 59 (part).

*Scloporos undulatus thayeri* YARROW. Bull. 24, U. S. Nat. Mus., 1882, p. 60 (part).

*Scloporos undulatus occidentalis* YARROW. Bull. 24, U. S. Nat. Mus., 1882, p. 61.

*Scloporos consobrinus* YARROW. Bull. 24, U. S. Nat. Mus., 1882, p. 61 (part).

? *Scloporos spinosus* YARROW. Bull. 24, U. S. Nat. Mus., 1882, p. 63 (part).

*Scloporos undulatus* var. *bocourtii* BOULENGER. Cat. Liz. Brit. Mus., 2d ed., 1885, p. 229.

*Scloporos uadulatus* COPE. Proc. Amer. Philos. Soc. XXII., 1885, p. 398; BOULENGER, P. Z. S., 1897, pp. 503-506 (part).

? *Scloporos undulatus smaragdinus* COPE. Proc. Amer. Philos. Soc. XXII., 1885, p. 399.

A large number of unrecorded localities where this species occurs is given below:

(3178-3183, 3200-3201) Carmel River, (3215) near Salinas, Monterey county, Cal.; (3211-3214) San Macento, (3196-3198) Big Basin, Santa Cruz county, Cal.; (3201) Searsville Summit, San Mateo county, Cal.; 3190, 3216-3223) Tamarack Flat, (3310-3316) between Wawona and Yosemite Valley, (3319) vicinity of Hornitos, Mariposa county, Cal.; 3205-3207) Anderson, (3158-3161) Stillwater, 17 miles north of Redding, (3151) near Delta, 600 feet above railway, Shasta county, Cal.; (3230) Slate range near White River, (3231, 3233-3234, 3138) White River, Tulare county, Cal.; (3532-3533, 3535, 3538, 3540-3542) Warm Springs Creek, near Skagg's Springs, (3556-3558, 3563) Knight's Valley Creek, near Kellogg, Sonoma county, Cal.; (3559-3560) Mountains near Aetna Springs, Napa county, Cal.; (3768-3772) Quincey, Plumas county, Cal.; (3673) Cottonwood Creek, near Hornbrook, Siskiyou county, Cal.; (3618-3625, 3627-3632, 3634, 3636) Fyffe P. O., El Dorado county, Cal.; (3162-3165) near Chico, Butte county, Cal.; (3679-3688, 3707) Gasquet's, Del Norte county, Cal.; (3543-3545) Russian River, Ukiah, (3546-3549) Albion River, two miles below Compche, (3552-3555) Navarro River, near Boonville, (3562) Garcia River, five miles above mouth; (3564) Robert's Creek, Ukiah, Mendocino county, Cal.; (3567, 3572, 3574, 3576, 3580, 3581, 3587, 3589, 3594) Garberville, (3660-3662) Phillipsville, (3665-3667) road between White Thorn and Garberville, Humboldt co., Cal.; (3650, 3652-3653, 3655) near State line on road from Crescent City, Del Norte county, Cal., to Grant's Pass, Ore.; (3668-3672) Grant's Pass, Ore.; (3708-3710) Deer Creek, Josephine county, Ore.; (2835) near Cottage Grove, Lane county, Ore.; (2823-2825) Blue Lakes Canon, Lincoln county, Idaho; (2811-2813) Sage brush plains, between Shoshone and Blue Lakes, Idaho; (2790-2797) Canon walls at Shoshone Falls, north of Ferry and at Blue Lakes; (2768) between Blue Lakes and Shoshone Falls, Idaho; (3189) Canal from Santa Ana River, Riverside Cal.; (3191-3195) Klamath Falls, Ore.; (3287-3297) Ontario, San Bernardino county, Cal.

Mr. Heller took one at Waterman's Canon, San Bernardino Mountains, Cal., while Mr. Coolidge found some at Oak Grove and Chihuahua Mountains, San Diego county, Cal., and also at Cajon Pass (or Wash), Grapeland, and in the San Bernardino Mountains of San Bernardino county, Cal.

13. *Sceloporus consobrinus* BAIRD & GIRARD. Several specimens (3716-3720) have been recently received from the Magdalena Mountains, Kelly, New Mexico.

14. *Sceloporus magister* HALLOWELL. An individual of this species (3715) from the Magdalena Mountains, Kelly, New Mexico, and several (3597, 3171-3172) from Tempe, Arizona, are in possession of the Department.

15. *Sceloporus orcutti* STEGNEGER. Mr. Geo. B. Culver collected one of these lizards (3232) at White River, Tulare county, Cal., which he presented to the collection. Mr. Heller took one at Dulzura, San Diego county, Cal., and Mr. Coolidge a number at Perris Valley, Riverside county, and the Chihuahua Mountains, San Diego county, Cal.

16. *Phrynosoma douglassii* (BELL). A single one of these lizards [1950] from Shoshone, Logan county, Idaho, seems also to have been overlooked by Mr. Van Denburgh in both his papers. † together with several others—[2838-2842] Arco, Alturas county, [2837] Snake River, American Falls, [195] Shoshone, Logan county, [2800] Sage brush plain, near Connant, Cassia county, and [2816] near Cottonwood Creek, Cassia county, Idaho—in the collection before the appearance of the former.

17. *Phrynosoma hernandezi* (GIRARD). Five of these horned toads have been lately received from the Magdalena Mountains, Kelly, New Mexico, [3710-3714].

18. *Phrynosoma blainvillii* GRAY. Mr. Coolidge took a number at Perris Valley, Riverside county, several at Grapeland and Cajon Wash [or Pass], San Bernardino county, and one at Chihuahua Mountain, San Diego county, Cal., which has all the head plates noticeably flattened and smooth.

19. *Phrynosoma frontale* VAN DENBURGH. Specimens from [3697] five miles north of Los Banos, Merced county; [3614] Livingston, Merced county; [3324] Smith's Creek, Santa Clara county; [3325] Carmel Valley, Monterey county; [3327] near Lathrop, San Joaquin county, and [3328] Santa Maria, Santa Barbara county, Cal., have all been added to the collection.

20. *Phrynosoma platyrhinus* (GIRARD). Two of this species [3334 and 3700] from Tempe, Arizona, have been presented to the Department. Mr. Heller collected a couple at Warren's Wells, San Bernardino county, Cal. [2784] Plains across the river from Glenn's Ferry, Idaho; [2803-2806] Plains between Bliss and Snake River; [2798-2799] on Sage brush plain, near Blue Lakes, Logan county; [2890] Sage brush plains, between Shoshone and Blue Lakes, Logan county, and [2817-2818] near Cottonwood Creek, Cassia county, Idaho. None of these have ever been recorded.

## FAMILY. HELODERMATIDÆ

21. *Heloderma suspectum* COPE. Mr. Van Denburgh failed to record three [1964-1966] of these large lizards collected by Mr. W. W. Price at Fort Lowell, Pima county, Arizona.

†Occasional Papers Cal. Acad. Sci., V 1897, p. 92, and Report Commissioner Fish and Fisheries on Investigation in Columbia River Basin, 1897, p. 56.



## FAMILY. ANGUIDÆ.

22. *Gerrhonotus burnettii* GRAY. Specimens of this form have been taken at [3664] Philipsville, Humboldt county; [3611] Pyffe, P. O., El Dorado county; [3566] Mount Shasta, Siskiyou county; [3550] Alder Creek, a small stream north of Garcia River, Mendocino county, and [3773] Quincey, Plumas county, Cal.

23. *Gerrhonotus scincicauda* (SKILTON). Mr. Coolidge took a large specimen between Waterman's Canon and Squirrel Inn, San Bernardino Mountains, and a small specimen at Grapeland, San Bernardino county, Cal.

24. *Gerrhonotus principis* (BAIRD & GIRARD). One of this form [3350] was collected at New Whatcom, Wash.

## FAMILY. TEIIDÆ.

25. *Cnemidophorus sexlineatus gularis* (BAIRD & GIRARD). A single individual [3722] was collected in the Magdalena Mountains, Kelly, New Mexico.

26. *Cnemidophorus tigris* BAIRD & GIRARD. Several specimens are in the collection from [2756 2757, 2762] Snake River plains by Upper Salmon Falls; [2800] on Sage brush plains, near Blue Lakes, Logan county, and [2826-2829] Blue Lake Canon, Logan county, Idaho.

27. *Cnemidophorus tigris undulatus* (HALLOWELL). Mr. Van Denburgh characterizes his *C. stejnegeri* from *C. t. undulatus* as follows:

"Spots on throat few and small; central gular and collar scales larger. .... *C. t. undulatus*."

"Spots on throat numerous and large, often forming irregular transverse bands; gular and collar scales larger..... *C. stejnegeri* "

Seven *Cnemidophori* from Carmel Valley, Monterey county, Cal., are all distinctly of the *C. stejnegeri* type, except one [3397], which is a young specimen and in which the spots are few and small. This great extension of the range led me to examine the others in the collection.

A jar of specimens from Ontario, Cal., taken by Mr. R. E. Snodgrass, contains four [3409, 3407, 3408, 3405] typical *C. t. undulatus*, one [3411] typical *C. stejnegeri*, while four [3406, 3410, 3412, 3414] are intermediate, though they are nearer *undulatus* than the other form.

Mr. Heller obtained typical *stejnegeri* at Warren's Wells and Lytle Creek, San Bernardino Mountains, San Bernardino county, and Cuyamaca Mountains, San Diego county, Cal., while he took typical *undulatus* at Lytle Creek, San Bernardino county, and a small intermediate specimen from Riverside, Cal. Mr. Coolidge took typical *undulatus* at † [125] Grapeland, altitude about 2,000 feet, [134] three miles west of San Bernardino, near Cajon Wash [or Pass], San Bernardino county, [130] from same locality, with but a very few spots, and a third one in Southern California, from which unfortunately the tag has been lost.

The occurrence of the white-throated form in the South and the spotted-throat form in the North indicate that *C. stejnegeri* is but a synonym of *C. t. undulatus*. Although we have not as many specimens to prove this as in the case of the identity of *Sceloporus occidentalis* and *Sceloporus biserialis*, yet from what is at hand we feel certain that future specimens will add to our proof and to confirm this beyond a doubt.

† Collector's numbers.

Indeed the variation of the spots on the side of the head seen in the northern *Cnemidophori* even lead one to suspicion the validity of *C. t. undulatus* as a good sub-species. But the almost total absence of specimens in the collection from the range of *C. tigris* prevent this matter being looked into more thoroughly at present.

Considered as above *C. t. undulatus* has been also taken (3617) at Bell's Station, Santa Clara Co., Cal., as well as at Perris Valley, and Riverside, Riverside Co., and at Oak Grove and Chihuahua Mts., San Diego Co., Cal., by Mr. Coolidge.

Mr. Coolidge, while in the Chihuahua Mountains, San Diego county, Cal., during the summer of 1897, found four eggs of this form lying on top of the small pile of earth, which he says is always found at the entrance to the burrows of these reptiles. They were lying in the open air exposed to the full glare of the sun, where they had evidently been left to incubate by the mother. The embryos were nearing the point of hatching, as all external characters [except that of coloration] were fully developed and the yolk sac was pretty well absorbed. The shell enveloping the young is a tough, membranous structure, oval in shape and less than an inch in length. As there are but few and scanty records of the breeding habits of reptiles, it gives me pleasure to mention this interesting statement concerning their early life history.

28. *Cnemidophorus hyperythra beldingi* (STEFJNEGER). Mr. Heller obtained one at Dulzura, San Diego, county, Cal.

#### FAMILY. SCINIDÆ.

29. *Eumeces skiltonianus* (BAIRD & GIRARD). This skink has been taken at [3639-3648] Fyffe P. O. and Sugar Loaf P. O., El Dorado county, Cal.; [3423] at Anderson, Shasta county; [3421-3422] Stockton, San Joaquin county, and [2417] at Wright's Station, Santa Clara county, Cal.

Mr. Heller collected one of these lizards at Palo Alto, Santa Clara county, Cal., in February, 1885, which had a salmon colored tail. On the 17th of the same month, five other specimens [3774-3778] were taken in the neighborhood of the University, all of which had salmon colored tails. The last three small ones have since then had the color fade considerably. During December I collected a number, all of which had bright blue tails. This variation in color suggests that it might be a seasonal change. Mr. Coolidge, however, took a small specimen with a bright pinkish-red tail at Chihuahua Mountains, San Diego county, Cal., in July, 1897. The real cause of this variation is as yet unknown.

Mr. Van Denburgh † on two specimens from San Francisquito, Sierra Laguna, Lower California, describes his *Eumeces lagunensis*, which he diagnoses as "Similar to *E. skiltonianus*, but tail salmon color instead of blue, and with interparietal smaller than either frontoparietal instead of larger."

Now our *skiltonianus* that have the salmon colored tail all have normal head plates. An examination of the not very large series in the Stanford University Zoological Museum show the head plates all to be normal. One of the distinguishing characters of *E. lagunensis* is seen to be of no specific value, and as it is very likely its head plates show as much variation as is seen in other lizards, it is not improbable that Mr. Van Denburgh's species has abnormal head shields and is simply a synonym of *E. skiltonianus*.

Mr. Coolidge took a specimen with a blue tail in the San Bernardino Mountains, Cal., during the summer of 1897.\*

† Proc. Cal. Acad. Sci., ser. 2, V. 1897. p. 134.

\* Since the above was written the writer is able to add a few words regarding the breeding habits of this species. Under date of July 4th, 1898, my friend Mr. Edmund Heller wrote me from Pacific Grove, Cal., that he had secured the eggs of *Eumeces*. At a later date, when asked for further information, he replied (August 20th): "In re-

30. *Eumeces gilberti* VAN DENBURGH. A specimen [3420] from Fyffe P. O., Eldorado county, Cal., was collected by Mr. W. W. Price.

SUBORDER II. SERPENTES.  
FAMILY. BOIDÆ.

31. *Charina bottæ* (BLAINVILLE). One of these snakes [4189] has been taken at the Summit Soda Springs, Placer county, California.

FAMILY. COLUBRIDÆ.

32. *Tantilla nigriceps* KENNICOTT. A snake with seven superior labials on both sides [4200], but with the nostrils piercing in a single nasal, I refer to this species. It was collected by Mr. John Metz, at Tempe, Arizona, in the mountains.

33. *Contia mitis* BAIRD & GIRARD. One [4271] from Wright's Station, Santa Clara county, Cal.

34. *Lampropeltis zonata* (BLAINVILLE). This bright colored snake has been collected at [427] Wright's Station, Santa Clara county, and at [4170] Fyffe P. O., El Dorado county, Cal.

35. *Lampropeltis boylii* BAIRD & GIRARD. Specimens [4025] from Jolon, Monterey county, Cal.; [4004] Fort Grant, Arizona, and [4175] San Aselmo, Marin county, Cal., have never been recorded. Mr. Coolidge took one at Riverside, Riverside county, Cal.

36. *Lampropeltis californiæ* (BLAINVILLE). A specimen of this beautiful snake [4100] was taken at Carlsbad, San Diego county, Cal. Mr. Heller collected it in the Cuyamaca Mountains and at Sorrento, in the same county.

37. *Salvadora grahamiæ* BAIRD & GIRARD. Mr. R. E. Snodgrass collected a specimen [4198] of this at Ontario, San Bernardino county, Cal. Mr. Coolidge took one at Riverside, Cal.

38. *Bascanion constrictor vetustum* (BAIRD & GIRARD). No. 4259 was taken "along the road between White Thorn and Garberville, Humboldt county, Cal."

39. *Bascanion flagellum frenatum* STEJNEGER. The collection contains a specimen [4303] of this sub-species taken at Rincon, Riverside county, Cal., by Mr. Snodgrass. Mr. Heller obtained one at Riverside, Cal.

40. *Arizona elegans* KENNICOTT. Mr. Heller found the tail of a snake of this species in the road at Riverside, Cal.

41. *Pituophis catenifer* (BLAINVILLE). One specimen [4220] taken at Garberville, Humboldt county, Cal.

42. *Thamnophis parietalis* (SAY). Specimens from a number of unrecorded localities are: [4261] Redwood Creek, Orrick, Humboldt county; [4262-4263] Maple Creek, Humboldt county; [4245] Garcia River, half a mile above mouth, Mendocino county; [4239] Albion River, two miles below Comptche, Mendocino county; [4235] Garcia River, five miles above mouth, Mendocino county; [4155] La Honda, San Mateo county; [4313] Sisson's, Siskiyou county, and [1800] Banta, San Joaquin county, Cal. Farther north it has been

gard to the *Eumeces* eggs, I will say that they were broken and the embryos fixed in picric sulphuric. The five eggs were spherical and of a blackish-brown color, with soft flexible shells. They were about the size of a Chipping Sparrow's egg (*Spizella socialis occidentalis*). We found them in an open field, among a rock pile, under a flat rock. They were covered with about half an inch of loose earth. The female was found under the rock with them. The date was about June 15th [1898]. The eggs were far advanced in incubation, the embryos presenting nearly all the adult characteristics—markings, coloration, etc."

taken at [4218] Coquille River, vicinity of Myrtle Point, Ore.; [2657, 2658] Kaniksu Lake; [2659] vicinity of Mt. Carlton; [2649, 2656] Blue Lake, Kootenai county, Idaho, and [2660-2662] Pullman, Putnam county, Wash.

43. *Thamnophis parietalis pickeringii* (BAIRD & GIRARD). An individual [4181] from Seattle, Wash.

44. *Thamnophis leptocephala* (BAIRD & GIRARD). Two [4275, 4277] were collected at Port Townsend, Wash., by Mr. Snodgrass, and one [4269] at New Whatcom, Wash.

45. *Thamnophis elegans* (BAIRD & GIRARD).\* This species has been taken in numerous localities: [4323] Guerneville; [4255-4258] Warm Springs Creek, near Skagg's Springs; [4229-4231] Wheatfield Fork, Gualala River; [4232] Knight's Valley Creek, near Kellogg; [4219] Junction of the Wheatfield Fork and the Gualala River, Sonoma county; [4253] Garcia River, ten miles from mouth; [4250-4252] Navarro River, four miles from mouth; [4249] Big River, seven miles from mouth; [4247-4248] vicinity of Mendocino City; (4244, 4245 Garcia River, half a mile above mouth; (4240, 4241) Ten Mile River; (4237-4238) Albion River, two miles below Comptche; (4236) Garcia River, five miles above mouth; (4233-4234) Robert's Creek, near Ukiah, Mendocino county; (4242-4243) South Fork of Eel River, Garberville, (4221) Garberville, Humboldt county; (4186) Felton, (4319) Soquel, Santa Cruz county; (4322) mountains between Stanford University and Spanishtown; (4272) Wright's Station, Santa Clara county; (4265, 4267) Gasquet's, Del Norte county, Cal., and (4260) Deer Creek, Rogue River Basin; (4217) Coquille River, vicinity of Myrtle Point, Ore

Mr. Heller and Mr. Coolidge took a number of this species in the San Bernardino Mountains and at Bluff Lake, San Bernardino county, Cal., respectively. These exhibited a great variation in the number of scale rows—from seventeen to twenty-one rows, no number being noticeably more abundant. Three specimens in the collection of the Department (4245, 4265, 4267) of this species have seventeen scale rows.

46. *Thamnophis vagrans* (BAIRD & GIRARD): This Garter snake has been taken at (4312-4313) Anderson, Shasta county; (4264, 4266) Gasquet's, Del Norte county; (4228) Mattole River, at White Thorn, Humboldt county; (4169) Fyffe P. O., El Dorado county, Cal.; (4330) Deer Creek, Josephine county, Ore., and (2664) Diamond Lake, Stevens county, Wash.

Three of these snakes (4330, 4266, 4228) have but nineteen scale rows

47. *Thamnophis hammondii* (KENNICOTT). Specimens are in the collection taken at (4324) Chino, San Bernardino county; (1183) Oak Grove, (1184) coast near Carlsbad, and (1187) Santa Isabel Valley, San Diego county, Cal. Mr. Heller obtained the species in the Cuyamaca Mountains and at Oak Grove in the latter county and at Riverside, in Riverside county, Cal.

Mr. Coolidge collected a number at Riverside in which the number of scale rows vary from nineteen to twenty-one.†

No. 4275 in the collection has nine superior labials on both sides. Two specimens (4326, 4373) from Carmel Valley, Monterey county, Cal., which I refer to this species, together with the occurrence of several specimens of the *stejnegeri* form of *Cnemidophorus*, noted above, suggested the northward extension of the southern fauna along the coast to that point. No further evidence is afforded by the collection in the support of this, however, and the variation in the

\* No. 4266 mentioned above has a bifid anal plate.

† Since the above was written one (1754) from Fresno, Cal., has been found to have but 17 scale rows.

southern *Cnemidophori*, which can only with doubt and uncertainty be maintained as a distinct form, lends still less evidence to the extension of the range of the southern forms.

48. ***Thamnophis marciana*** (BAIRD & GIRARD). Two specimens which apparently belong to this species are in the collection—(4040) taken by Mr. W. W. Price at Tucson, Arizona, and (4216) from Tempe, Arizona, taken by Prof. W. W. Thoburn. This species is closely connected with *T. vagrans*; its true status is not as yet definitely settled.

Before leaving this genus I would speak a few words concerning the facts noted on the species mentioned. First I would say a word of praise to Mr. Van Denburgh, who, with the excellent collection of coast Garter snakes of the Stanford University at his disposal, succeeded in unraveling the meshes of the described western forms. †

Before his paper appeared there were somewhere in the neighborhood of seventeen species and sub-species described from the region his work covers. These forms are reduced to seven—five species and two sub-species.

An examination of the material used by the gentleman mentioned, together with the new material recorded above, proved that seven tenable forms only can be recognized. The confusion caused by Prof. E. D. Cope's careless work with this genus may be considered set aright as far as the Pacific coast is concerned. Though the writer confidently expects further material may reduce the number one or two more when connecting material in the ranges—especially in the Northwest—of the several forms is obtained.

This genus is certainly the most variable of North American snakes. Constant characters are apparently difficult to establish: *T. vagrans* sometimes has nineteen scale rows; *T. elegans* varies in the number of rows from seventeen to twenty-one (or twenty-three).‡ From this we will see that to identify the forms by Mr. Van Denburgh's key to species, in regard to this character, will be accompanied with difficulties, to one unacquainted with the different forms. Likewise we have *T. hammondi* with nine superior labials and *T. elegans* with seven superior labials on both sides. As we have no good reason for not believing that the other species of the genus do not vary as much as those which we have more specimens of, it is evident that a specific key is of little value based on the scale formula. The variation of the superior labials also weakens Mr. Van Denburgh's key and throws most of the best distinguishing characters onto the color, and although I will admit that color variations are received only with doubt by me, I am forced to confess that the color seems to be the best discriminating point. And it is this great variation of the scales, together with the resemblance in coloration of some of the species, which suggest that the number of Pacific coast forms will be further reduced when a more thorough knowledge of our Northwest species is presented.

#### FAMILY. CROTALIDÆ.

49. ***Crotalis lucifer*** BAIRD & GIRARD. No. 1764 comes from the Klamath River, Cal. Mr. Heller took it at Bluff Lake, in the San Bernardino Mountains, and in the Cuyamaca Mountains, San Diego county, Cal. Mr. Snodgrass found the species at Ontario, Cal.

50. ***Crotalis confluentus*** SAY. Mr. W. W. Price took one of these snakes (4185) at Wilcox, Colise county, Arizona.

51. ***Crotalus mitchellii*** (COPE). Mr. Coolidge took an excellent specimen of this rare Rattlesnake at Coyote Valley, twenty-five miles east of Oak Grove, San Diego county, Cal.

† Occasional Papers Cal. Acad. Sci., V 1897, pp. 199-214.

‡ Seventeen scale rows in (1754) from Fresno, Cal.











Contributions to North American Herpetology.

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CONTRIBUTIONS

TO

Neotropical Herpetology.

BY

ROBERT BAIRD McLAIN.

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WHEELING, W. VA.

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FEBRUARY, 1899.









# Contributions to Neotropical Herpetology.

ROBERT BAIRD McLAIN.

The following is a list of Neotropical reptiles in the collection of the Zoological Department of Stanford University, obtained from several different sources. The specimens from Mazatlan, Mexico, were brought back by the first Hopkins' Expedition and those from Panama, U. S. of Colombia, and Acajutla, Salvador, were secured by the second Hopkins' Expedition. For both of these trips the Department was indebted, both financially and otherwise, to Mr. Timothy Hopkins, of Menlo Park, Cal. The specimens from Retalhuleu, Guatemala, were collected during the winter (May) of 1895, by Mr. Arnold F. Rothstern, who presented them to the Department. Those from scattering localities in Mexico were procured by Mr. A. J. Woolman, who also presented them to the collection. The Lower Californian reptiles were mostly secured by Mr. J. F. Abbott.

The writer regrets to say that lack of time has prevented him from working up about half a dozen more of the snakes, while lack of material for comparison and absence of proper literature has prevented him from mentioning about the same number of lizards and the turtles of the collection. In all cases the numbers are given with the double purpose of confirming the following statements and to insure a correct interpretation of them in the future.

I also desire to express my satisfaction toward the drawings of the new species made by my friend Mr. Wm. S. Atkinson, artist of the Zoological Department.

ORDER.      SQUAMATA.  
SUBORDER.      SAURI.  
FAMILY.      GECKONIDÆ.

1. **Gonatodes fuscus** (HALLOWELL). Two geckos (3516-3517) of this species were secured at Panama, U. S. of Colombia, and two others (3524-3526) at Acajutla, Salvador.

FAMILY.      IGUANIDÆ.

2. **Basiliscus vittatus** WIEGMANN. Five specimens of this lizard (2850, 2852, 2857-2959) are from Retalhuleu, Guatemala, and one (3528) from Acajutla, Salvador.

3. **Basiliscus gutturalatus** COPE. † A number of these (3482, 3483, 3470-3481, 3504-3514) were collected by the Hopkins Expedition to Panama. Nos. 3472 and 3473 are large, measuring length to vent 150 mm, total length 495 mm and length to vent 135 mm, total length 415 mm, respectively. The others are of various sizes, but all much smaller.

I am at present inclined to agree with Prof. Cope in considering this a distinct and separable species. The two specimens mentioned above are much larger than those of *B. vittatus* in the collection and are distinguishable at once from them.

† Journ. Acad., Phila., 1875, p. 156, and Bull. U. S. Nat. Mus. No. 32, 1887, p. 32.

The dorsal crest is inconspicuous, very slightly raised. There may be more than two large labials behind the point of junction with the suborbital ring of scales. Fourteen or fifteen rays or spines can be felt along the dorsal crest and twenty to twenty-three in the slightly developed caudal. The color above is a dull dusky, with several (five) dark brown or black bands across the back.

In the young, a white longitudinal band runs from above the tympanum backward, dying out before it reaches the hip. Another wider white band runs from the nostril to the forelimb and sometimes extends farther backward. The throat has four dusky longitudinal streaks on its white surface.†

4. *Iguana tuberculata* LAURENTI. One (3469) was taken at Panama, U. S. of Columbia.

5. *Ctenosaura completa* BOCOURT. Two specimens (3484-3485) were secured at Panama.

Although the dorsal crest is complete in both, it is very low and small just above the intersection of the hind limbs.

6. *Holbrookia texana* (TROSCHERL). One specimen (1971) from Chihuahua, Estado de Chihuahua, Mexico, was presented to the collection by Mr. A. J. Woolman.

9. *Sceloporus clarkii* BAIRD & GIRARD. A specimen of this lizard (2915) is from Mazatlan, Mexico, which is the most southern locality from which this species has as yet been taken.

12. *Sceloporus variabilis* WIEGMANN. Mr. A. J. Woolman presented two, 1969-1970 to the collection, which he took at Orizaba, Mexico, altitude 1400 feet.

13. *Sceloporus fulvus* BOCOURT. M. Bocourt described this specimen in 1874 from two specimens taken by M. Lataste in Central America. No further specimens have ever been recorded.

The Hopkins' Expedition were fortunate in securing two more (3525, 3529) of the species at Acajutla, Salvador.

14. *Phrynosoma coronatum* (BLAINVILLE). This species has been secured (3321-3323) at Santa Anita, L. Cal.

#### FAMILY. TEIIDÆ.

17. *Ameiva undulata* WIEGMANN. Several (2843-2844, 2846, 2848-2849, 2851, 2753-2855, 2860-2861, 3442) were procured at Retalhuleu, Guatemala, during the winter (May) of 1895.

18. *Ameiva surinamensis* (LAURENTI). A large number (3443-3468, 3490-3503) were taken at Panama, U. S. of Columbia, about half of which were adult and the other young specimens.

19. *Cnemidophorus sexlineatus* (LINNEUS)\*. Quite a few (2689, 2704-2705, 2709-2710, 2716, 2719, 288) of these lizards were taken at Mazatlan, Mexico.

#### FAMILY. SCINCIDÆ.

21. *Mabuia agilis* (RADDI). Four of these skinks (3521-3522,

† Mr. C. J. Pierson confirms former statements that these lizards can run rapidly over the surface of deep water without sinking into it. This seems to be true for the entire genus, as Lieut. Wirt Robinson in "A Flying Trip to the Tropics" Riverside Press, Cambridge, Mass., 1895, page 45, makes the same remarks concerning *Basiliscus americanus*.

\* A small black specimen (3580) of this genus, belonging to the *Cnemidophorus deppii* Wiegman group, has nine longitudinal white stripes. It came from Acajutla, Salvador. For lack of comparable material I hesitate from referring it to any of the numerous forms.

3486, 3515) were taken at Panama, U. S. of Columbia, and one (2862) from Retalhuleu, Guatemala, was presented to the Department.

SUBORDER. SERPENTES.

FAMILY. LEPTOTYPHYLOPIDÆ.

22. *Siagnodon humilis* (BAIRD & GIRARD). Mr. George B. Culver collected one (1776) at Mazatlan, Mexico, on the Hopkins' Expedition.

FAMILY. BOIDÆ.

24. *Xiphosoma annulatum* COPE. A specimen (3148) was taken from a bunch of bananas. It had 55 scale rows, three preoculars or scales before the eye, three loreals, and the superior labials were 13 on one side and 15 on the other side. Fourteen is said to be the normal number of these scales.

FAMILY. COLUBRIDÆ.

25. *Leptodeira personata* (COPE). A snake of this species (4068) was collected at Retalhuleu, Guatemala.

26. *Oxybelis acuminatus* (MAX VON WIED). One of these peculiar reptiles (4080) also came from Retalhuleu, Guatemala.

27. *Drymobius chlorocticus* (COPE). A specimen (4071) from Retalhuleu, Guatemala, has seventeen scale rows; the first is smooth and the second feebly keeled.

28. *Drymobius margaritiferus* (SCHLEGEL). No. 3489 from Panama, U. S. of Columbia, has nine superior labials on one side and eight on the other. Temporals 1-2 on both sides.

No. 4074 from Retalhuleu, Guatemala, has nine superior labials on both sides. Five and six inferior labials are in contact with the anterior genials.

30. *Natrix fasciata* (LINNEUS). A small (4031) specimen referable to this species and apparently to the sub-species *N. f. sipedon* (B. & G.) is labeled "Mexico."

31. *Spilotes corais* (CUVIER). Four of these snakes (4081, 4083 4085) from Retalhuleu, Guatemala, all have seventeen scale rows around the body and twenty-three or twenty-four around the neck. The superior labials of the first are 7-8 and of the others 8-8. Body brown, black, marked, with an oblique stripe on each side of neck. Posterior part of body suffused ventrally with brownish, not black.

31. *Salvadora grahamiæ* BAIRD & GIRARD. On the peninsula of Baja California this species has been secured (4297-4299) at Santa Anita.

32. *Thamnophis insignarum* (COPE). One of these garter snakes (1801) is from "Mexico;" it was taken on July 19th, 1891, by Mr. A. J. Woolman. The catalogue says, "ditch along canal abundant."

33. *Thamnophis melanogaster* (WIEGMANN). One of this species (4037) is from the City of Mexico. It was presented by the collector, Mr. A. J. Woolman. As the description of this well marked snake may be inaccessible to most or some of my readers I append a short diagnosis.

First row of scales not keeled - indistinctly keeled in some places. Second row feebly keeled, while all the rest are indistinctly keeled. Scales in nineteen rows. Superior labials eight, orbit bounded below by two—4th and 5th. Temporals 1-2. Oculars 2-3 and 2-4. Loreals

longer than high. Olive brown above, a light line on second and third row of scales (or second row. A series of small black spots forming a broken darker line, both above and below the lateral light stripe. Throat yellowish. Gastrosteges jet black centrally, with lateral black wings extending toward the sides. Sides of gastrosteges olive or plumbeous ("or pale grayish with a median series of more or less confluent small black spots" Blgr). The black ventral line is narrow anteriorly, just behind the throat, where it begins. Urosteges jet black centrally, grayish laterally.

34. *Thamnophis stejnegeri* sp. nov.

Number 4032 from Salamanca, State of Guanajuato, Mexico, taken by Mr. A. J. Woolman, appears to be a new and distinct form. I have been unable to find any description to which my specimen answers; however, as the variation in this genus is so great it may prove to be but a synonym of a already described form.

**Description of 4032 Stanford Univ. Zool Dept Mus Type of *Thamnophis stejnegeri*.** Type locality: Salamanca, Estado de Guanajuato, Mexico.) Lateral stripe on third and fourth rows. Scales in twenty-one rows, first row keeled. Temporals 1-2, 1-3 (an additional scute on one side). Tail about one-fourth the total length. Superior labials eight, eye above the suture between fourth and fifth. Oculars 1-3. Inferior labials ten, first five in contact with the anterior genials. The posterior genials longer than the anterior. There are four small scutes between the two posterior genials. Upper end of preoculars touch the anterior lateral corners of the frontal.

Dorsal stripe covers the middle (11th) row and inner half of the row (10th), bordering it on each side. It extends from the very base of the junction of the parietal plate to the neighborhood of the anus, and from this region on to the extremity of the tail; the stripe occupies only the inner half of the two scale rows. Between the dorsal and the lateral stripes the dorsal region is black, (possibly brown in live specimens,) each scale has a white line along its keel—in this respect resembling *Drymobius margaritiferus* (Schlegel). These whitish lines show plainly through the scutes. Below the lateral lines, the first and second rows are olive grayish, with black spots on the edges of the scales, which form a very irregular row or rows of spots. The superior labials are black bordered and the inferior labials slightly so. A light crescentic indentation extends upward back of the angle of the mouth into the dorsal coloration. The head beneath is yellowish. Gastrosteges and urosteges olive-greenish, with a narrow black line at the base of each, which in some may be concealed by its imbricate neighbor.

Number 4034, taken by the same collector near the City of Mexico, resembles the above specimen very much, but differs from it in the following particulars: Oculars 1-3, 1-4. Preoculars not quite touching anterior corners of the frontal. Smaller in size. Dorsal coloration with indistinct indentations of a lighter shade laterally. Temporals 1-3 on both sides.

This seems apparently so distinct from any description I have encountered that I venture to describe it despite the small number of existing examples.

Compared with Prof. Cope's recent key\* to the genus. Our new species seems to be closely connected with *T. proxima* (Say) and *T. megalops* (Kennicott) and more nearly to the latter. Being unable to compare my new form with this species I will have to hope that my description can be relied upon to explain the distinctive coloration and other features of this new form.

As my specimens were both alcoholic, the colors above described are not applicable to the living reptiles.

\* Proc. U. S. Nat. Mus. XIV., 1892, p. 646.



I take pleasure in dedicating this species to Dr. Leonhard Stejneger in recognition of his recent studies of North American Herpetology.

36. *Lampropeltis boylii* (BAIRD & GIRARD). Three (4115, 4173-4174) from San Jose del Cabo, L. Cal.

Prof. E. D. Cope, in Proc. Acad. Nat. Sci., Phila., 1861, p. 301, characterizes his *L. boylii* var. *conjuncta* by its having "the scales in the white crossbands black bordered. Mr. Van Denburgh later \* raises this phase of this snake to specific rank.

Now of the snakes of this species in the Museum of the Zoological Department here, as well as a number of specimens from other sources, all taken in the State of California, quite a number of adult specimens are found to have black bordered scales in the white crossbands. Different degrees and phases are noticeable, so that I am inclined to doubt if those from the peninsula are of a distinct, tenable form.

37. *Lampropeltis micropholes* COPE. Two large specimens of this snake are from Retalhuleu, Guatemala. They both have seven superior labials and correspond to section B of Mr. Boulenger's subdivision † under this species. No. 4079 has nineteen scale rows and No. 4082 has twenty-three.

#### FAMILY. ELAPIDÆ.

38. *Elaps fulvius* (LINNEUS). A single individual (4077) from Retalhuleu, Guatemala.

#### FAMILY. HYDROPHIDÆ. TR

39. *Hydrus platurus* (LINNEUS). One of these snakes [4261] from the Pacific Ocean, west coast of Mexico, has a black dorsal region and yellow sides and belly. The tail has both dorsal and lateral black spots. This corresponds to section E, under Mr. Boulenger's subdivision of this species. It is sometimes spoken of as *Hydrus* [or *Pelamis*] *bicolor*.

No. 1757 is from Mazatlan, Mexico. The dorsal region is black, the ventral region brown, and a lateral stripe of yellow extends along the sides. The tail as in the other specimen. This corresponds to section D, of Mr. Boulenger's subdivision under this species. ‡ His three specimens are from "Bombay," "Oo Simia, Loo Choo Is" and "Australia."

#### FAMILY. CROTILIDÆ.

40. *Crotalus lucifer* BAIRD & GIRARD. A Rattlesnake of this species [1719] comes from the San Pedro Mts., L. Cal.

41. *Crotalus enyo* COPE. One specimen [4328] in the collection from San Jose del Cabo, L. Cal.

\* Proc. Cal. Acad. Sci. (2). V. 1895, p. 142.

† Catalogue Snakes Brit. Mus., 2d ed., 1894, vol. II, p. 23.

‡ Catalogue Snakes Brit. Mus., 2d ed., 1896, vol. III, p. 267.



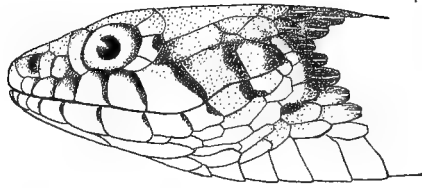


FIG. I.

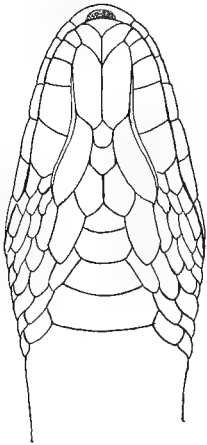


FIG. II.

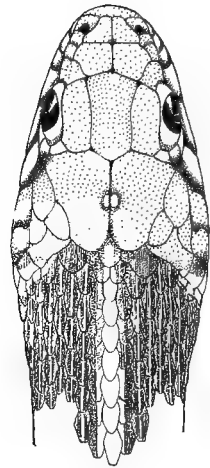


FIG. III.

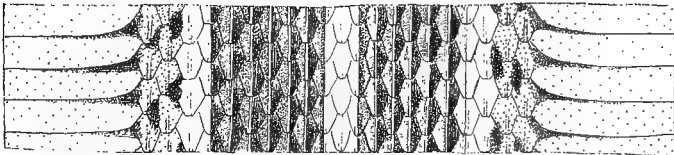


FIG. IV.

THAMNOPHIS STEJNEGERI, SP NOV.

STEJNEGER'S GARTER SNAKE.









