

SOME REALLOCATIONS OF TYPE LOCALITIES OF REPTILES AND
AMPHIBIANS DESCRIBED FROM THE MAJOR STEPHEN H. LONG
EXPEDITION TO THE ROCKY MOUNTAINS, WITH COMMENTS ON SOME OF
THE STATEMENTS MADE IN THE ACCOUNT WRITTEN BY EDWIN JAMES

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ABSTRACT

The Stephen H. Long Expedition to the Rocky Mountains was the first expedition to the West that had trained biologists in its party. In this paper that section of the expedition from Council Bluff to the Rockies and return to Cape Girardeau is reviewed, and various type localities and dates of collection of type specimens are corrected or elaborated. These include *Elaphe obsoleta*, *Coluber constrictor flaviventris*, *Thamnophis proximus*, *Thamnophis sirtalis parietalis*, *Sistrurus catenatus tergeminus*, *Masticophis flagellum testaceus*, *Cnemidophorus tessellatus*, *Bufo cognatus*, *Crotaphytus collaris*, and *Scincella lateralis*. Comments on the genus *Bipes* and horned lizards, genus *Phrynosoma* are included.

INTRODUCTION

The Major Stephen H. Long expedition from Pittsburgh to the Rocky Mountains in 1819-1820 was a milestone in the early exploration of the American West. For the first time actual scientists were made part of an expedition, these being Thomas Say, zoologist, William Baldwin, botanist, Augustus E. Jessup, geologist, and Titian Ramsay Peale, an artist and taxidermist as "assistant naturalist." Baldwin, unfortunately, became ill and left the expedition at Franklin, Missouri Territory (Missouri did not become a state until 1821), and Jessup resigned in the fall of 1819. They were replaced in June 1820, at Council Bluff (site of Omaha, Nebraska and Council Bluffs, Iowa) by Edwin James, a physician, botanist, and geologist. To allow the reader an appreciation of the problems posed by the account of the expedition, a brief history seems in order.

Stroud (1992) suggested that "Although Say, as senior scientist, most likely should have assumed the task of compiling his writings with those of Long, Baldwin, and James, James took over instead. Probably Say was too involved with writing *American Entomology* and editing and writing for the *Journal of the Academy of Natural Sciences*. Nevertheless he was much occupied with editing the expedition's account." Furthermore, "James had apparently very much wanted the job of writing the expedition's account, most likely because he was virtually penniless at the time. But he told his brother that he felt 'wholly incompetent to it. It has been as you know a matter of my own seeking and if I shall hereafter be thought to have failed in it, on my own head be the mischief.'" Stroud (op. cit.) also says that James indicated he would probably be "able to shift a part of the responsibility from myself by the proper construction of the title," which he did:

the title page states that the account is "compiled from the notes of Major Long, Mr. T. Say, and other gentlemen of the party."

The account of the expedition was published in two places, one (James, 1823) was published by Carey and Lea in Philadelphia, and with some differences, a little later (1823) in London by Longman, Hurst, Rees, Orme, and Brown (persons citing one or the other should note the minor differences in the titles). The London edition contains on page 36 a statement referring to the Philadelphia edition, thus the Philadelphia edition is the earlier printing. Although both accounts are dated 1823, the Philadelphia edition, at least, actually had an 1822 printing of an Atlas (I have not seen the Atlas, which contains four pages of text plus plates and figures) and, in fact, the 1823 account had a claim of propriety registered with the Chief of the Eastern District of Pennsylvania in 1822 (Thwaites, 1905). Another account, much abbreviated and with little of the natural history, was written by Captain J. R. Bell (Bell's official report apparently was lost or suppressed by the War Department but by a fluke his diary was discovered by Harlin M. Fuller, in 1932, whose college roommate had mentioned an old diary passed on within his family). Bell's account has important value for dates because he noted some event, no matter how trivial, for each day of the expedition. Fuller used the diary as the basis for a master's degree at Stanford University and later, with Leroy R. Hafen, published an edited version (Fuller and Hafen, 1957). Goodman and Lawson (1995) also mention that Bell's dates are more reliable than some in James' account. And herein begins some of the problem with the account.

Returning from Colorado, the party divided into two groups, one led by Long, with James in accompaniment, to find the headwaters of the Red River, but which mistakenly followed the Canadian River, and another group with Bell and Say to follow the Arkansas River downstream to Fort Belle (Fort Smith), Arkansas Territory. Say's manuscripts and descriptions of species were stolen on the night of August 30, 1820, by three deserting soldiers who took the horses that carried Say's saddlebags. At that time the party was located about ten miles south of Tulsa, Oklahoma, near the Arkansas River. Where Say's notes made subsequent to the August 30 theft might be is unknown. To complicate matters, the collected specimens were placed in the Charles Willson Peale Museum in Philadelphia, a precedent set earlier by Thomas Jefferson, who ordered that specimens from the Lewis and Clark Expedition be deposited there. The Peale Museum went bankrupt in 1843 and six years later the museum items were bought at auction by P. T. Barnum and Moses Kimball (Stroud, 1992). Barnum's material was destroyed by fire in 1851, but most of the Kimball part eventually went to the Museum of Comparative Zoology at Harvard; Jose Rosado of that Museum says (in litt.) that they have no specimens identifiable with the Long Expedition. The lost Barnum holdings probably included the types of species described by Say. The account written by James thus is partially done from memory because of the theft of Say's notes. Yet the detailed descriptions in the account, e.g., scale counts of snakes, suggest that the specimens Say collected had tags with data on them. Stroud (1992) says "Baldwin recounted that Mr. Peale has painted most of Say's fishes and amphibia," but this was before they left Pittsburgh. Stroud (op. cit.) also says "It was fortunate that Say had such a good memory—probably trained by the numerous literary quotations he had once committed to it—for he was able to reconstruct most of the information stolen with his saddlebags. Luckily he still had the notes he had taken up to and

including his stay at Engineer Cantonment" (campsite used in winter of 1819-1820).

In Thwaites (1905, vol. 17), Long is quoted as saying that "Most of the collections made on the expedition have arrived at Philadelphia and are in good preservation . . ." Long's account is mainly a report on the topography and Indians (he was attached to the Topographical Engineers of the army); but Long mentions mammals and a casual reference to abundance of reptiles and says that Say's specimens were shipped from New Orleans. Long also reports that, "The sketches executed by Mr. Peale amounted to one hundred and twenty-two. Of these, twenty-one only were finished; the residue being merely outlines of quadrupeds, birds, insects, &c." Dates are sometimes different, but Bell's diary apparently has the accurate dating because he had made an entry for every day of the trip.

Chittenden (1902, vol. 2, p. 578) says of the itinerary, "It would scarcely be possible to find in any narrative of Western History so careless an itinerary, and in a scientific report like that of Dr. James it is inexcusable." Typically, when an animal was obtained by Say he immediately would take notes on its appearance. However, where descriptions of new species are presented by James, they may not necessarily be at the point in the chronological account where the animal was taken. James, in fact, bitterly commented about Major Long, whom he apparently disliked; in a letter to his brother from Cape Girardeau, he stated that Long allowed him neither time to examine and collect, nor means to transport plants or minerals. "We were hurried through the country as if our sole object had been, as it had been expressed in the orders which we received at starting 'to bring the expedition to as speedy a termination as possible'" (Stroud, 1992: 123). One must suppose that Long pushed as rapidly on the entire expedition, thus descriptions may have been delayed until adequate time allowed for a presentation, or that details from memory could not be made in clear association with dates or places.

For the present writing I have mostly used the microcard version of the Philadelphia edition of James' account, and in place of the London edition I have used the version of Thwaites (1905). My interest in the Long expedition resulted from the publication of Goodman and Lawson (1995), which, though primarily concerned with the botany of the trip, has proved most fruitful in establishing the probable routes taken and dates of encampment. The text of James' account is difficult to follow because one is not sure whose notes are being utilized, even though the writing styles are different. The Philadelphia edition is more complete, and also has an index. Goodman and Lawson deal only with the trip from Council Bluff, and emphasize the botany, nothing of the animals, but they do give dates, maps, and photographs to verify the illustrations made by the expedition artist Samuel Seymour. I do not deal with that part of the expedition from Pittsburgh to St. Louis, only with the St. Louis area, the trek westward, and the return to Cape Girardeau, Missouri, an area visited previously during the St. Louis stopover.

TYPE LOCALITIES

Elaphe obsoleta

This is the first herpetological species described from the trek westward from St. Louis. Dowling (1952) gives the statement "on the Missouri River from the vicinity of Isle au Vache to Council Bluff," this from the Philadelphia account.

Dowling then says, "Cow Island is near Leavenworth County, Kansas, and is somewhat more than 100 miles downriver from Council Bluffs, Iowa. At present it appears unnecessary to restrict the type locality further. Should this be necessary at some later date, it could reasonably be restricted to the vicinity of Cow Island, where Say carried on his investigations for some time." Schmidt (1953) gives the type locality as "Isle au Vache to Council Bluffs on the Missouri River; rest. to Council Bluffs on the Missouri River." Stejneger and Barbour (1943) say for *Elaphe obsoleta obsoleta*, "Isle au Vache [sic] (the "sic" is S. and B.'s wording) to Council Bluffs on the Missouri River."

On pages 139-140 (vol. 1) of James (1823) in the Philadelphia edition, which is an account of the area around Isle au Vache, James reported (obviously from Say's notes) "We have seen at Bellefontain [an old military post near St. Louis], as well as at several other points on this river, a pretty species of sparrow, which is altogether new to us;* and several specimens of a serpent have occurred, which has considerable affinity with the pine snake of the Southern States or bull snake of Bartram [Bartram, 1791].*" The terms pine snake and bull snake would refer to genus *Pituophis*. The asterisks indicate descriptions at the bottoms of pages 139 and 140. On page 139 the description of the sparrow *Fringilla grammacea* Say begins and states "Shot at Bellefontain on the Missouri," and on page 140, footnote 163 refers to the description of *Coluber obsoletus*. At this point the account is referring to animals seen at Bellefontain. The actual description is of a black snake of "anterior half with a series of dull-red large circles, formed upon the skin between the scales on the side," and the animal is said to resemble *Coluber constrictor* "but the scales are decidedly smaller, and the number of its plates and scales approach it still more closely to that uncertain species *C. ovivorus*" [*C. ovivorus* Merrem 1820: 134, but the spelling there is *ouiourus* and a footnote indicates Linn S.N. I, p. 385]. I think the reference is to Tomus I of the 12th edition of Linnaeus' *Systema Naturae* where *ovivorus* appears on page 385. The reference also says "C.N. 203+73" [the ventral scute count of *ouiourus* is much below that of *obsoleta* but would fit *Elaphe vulpina*, whose range currently reaches just north of St. Louis north of the Missouri River, and the subcaudal count of 73 exceeds the 71 maximum reported by Powell (1990) for *Elaphe obsoletus*]. "It is not an uncommon species on the Missouri from the vicinity of Isle au Vache to Council Bluff." That the sparrow was described much later than it was collected is a clear indication that descriptions are not necessarily associated with point of collection, and, of course, might also be an indication that *Coluber obsoletus* was taken from Bellefontain. The statement "It is not an uncommon species. . . ." sounds like an afterthought and makes Bellefontain seem a logical type locality.

What was Say seeing at Bellefontain? Terms such as pine snake and bull snake would apply to blotched specimens, hence possibly *Elaphe guttata emoryi* at the edge of its currently known range, or juvenile *Elaphe obsoleta*. *Lampropeltis c. calligaster* and *Elaphe vulpina* are ruled out because their highest ventral counts are below the minimum count for *E. obsoleta*. Anderson's (1965) map shows the northern range of *E. guttata* as being a little south of Bellefontain. Bartram's (1791) pine snake, however, would be the Florida variety, whose blotches are obscure on the anterior half of the body but the Floridian version of *Pituophis melanoleucus* does not occur anywhere near St. Louis, and *P. m. sayi*, the species that does occur near St. Louis, is vastly different in pattern.

At this point I must accept the "Isle au Vache" type locality, but the puzzle is what Say was seeing at Bellefontain where they stayed for several days. That some

degree of blotching was evident in the *Elaphe* at Isle au Vache could be a confirmation of what Say saw at Bellefontain and assumably Say would have captured some of the snakes seen at Bellefontain.

Coluber constrictor flaviventris, *Thamnophis sirtalis parietalis*, *Thamnophis proximus*

The expedition spent the winter of 1819-1820 near present-day Omaha, Nebraska, and Council Bluffs, Iowa. The winter quarters (James vol. 1, p. 146 of the Philadelphia edition) "was on the west bank of the Missouri, about a half mile above Fort Lisa, five miles below Council Bluff, and three miles above the mouth of Boyer's River." The site, called Engineer Cantonment, was about 100 yards northwest of a limestone quarry. Sometime between December 12 and December 30, 1819 (both the Philadelphia and London editions describe events of December 12, but without any other accounting; the next date shown is December 30, so the exact date cannot be determined), laborers at the quarry opened fissures in which a number of snakes were hibernating. Included were three kinds considered to be new species: *Coluber parietalis* (*Thamnophis sirtalis parietalis*), *C. flaviventris* (*C. constrictor flaviventris*) and *C. proximus* (*Thamnophis proximus*). Setting the site of Engineer Cantonment as the type locality seems easy enough. The latest statements of type locality are, for *Thamnophis sirtalis parietalis*, "Stone quarry on west side of Missouri River three miles above mouth of Boyer's River, Washington County, Nebraska . . . collected by Thomas Say 1819" (Rossman, 1980); for *Coluber constrictor flaviventris* Wilson (1978) says, "west bank of the Missouri . . . three miles above the mouth of Boyer's River; restated by Rossman (1963: 109) as 'approximately 3 miles ENE Fort Calhoun, Washington County, Nebraska'." Wilson adds, "collected by T. Say on 12 December 1819." Wilson's literature citation for the James account says Peary and Lea (sic), an obvious error for Carey and Lea. For *Thamnophis proximus*, Rossman (1970) gives "*Coluber proximus* Say 1823: 339 . . . Stone quarry on west side of the Missouri River, 3 miles above the mouth of Boyer's River," restated as "approximately 3 miles ENE Fort Calhoun, Washington County, Nebraska" by Rossman (1963: 109). Rossman (1963) actually says, "The specimen was collected in Nebraska at a stone quarry on the west side of the Missouri River, 3 miles above the mouth of Boyer's River (Iowa) by Long's expedition to the Rocky Mountains in 1819 or 1820. The type locality lies approximately 3 miles ENE Fort Calhoun, Washington County, Nebraska." Rossman (1963) also indicated that Smith and Taylor (1945) listed the holotype as lost, but it was probably deposited in the Academy of Natural Sciences of Philadelphia, though this is not a certainty (H. M. Smith, personal communication to Rossman). As stated above, we know that the expedition's specimens were to be deposited in the Charles Willson Peale Museum.

Goodman and Lawson (1995, p. 3, footnote 4), say that the mouth of Boyer River once entered the Missouri about 3/4 mile below the Washington-Douglas county line but has now been shifted via modern feats of engineering upstream five miles. Thus, to allow for the original Boyer River situation, the type locality for all three species described from the quarry, and with respect to the map and statements on page five of Goodman and Lawson, I hereby restate the type localities as about five miles south of Ft. Calhoun, Section 28, T17N, R13E in Washington County, Nebraska.

Sistrurus catenatus tergeminus

According to Minton (1983), the type locality of *Sistrurus catenatus tergeminus*, described by Say as *Crotalus tergeminus*, is "indefinite; restricted to Winfield, Cowley County, Kansas [Smith and Taylor, 1950]. No holotype designated." In my estimate, this assessment is erroneous. Grant that Cowley County is well within the range of that subspecies, but the expedition account of August 17, perhaps August 18, 1820, contains no mention of rattlesnakes. The actual description that appears on page 499 (vol. 1) of the Philadelphia edition is for the date of July 4, 1820, when the party was in Adams County, Colorado. Stejneger and Barbour (1939) did not recognize *S. c. tergeminus*. Schmidt (1953) says, "Locality not stated; designated as headwaters of Arkansas River." Gloyd (1940) says "Type locality indefinite; no type specimens designated," and Klauber (1956) says, "Type locality: between the Mississippi River and the Rocky Mountains; type specimen: none designated. Type locality subsequently restricted to Winfield, Cowley County, Kansas, by Smith and Taylor . . ." But many references to *Crotalus tergeminus* appear at earlier dates in the text, and such a clear statement of encounters with it is given that I believe I can give a more specific locality.

In volume one, page 344 of the Philadelphia edition appears the following: "On the 12th [April 1820] Lt. Graham, Lt. Talcott of Camp Missouri, Mr. Seymour and I, accompanied by a soldier, departed in our small row boat, for the purpose of ascending Boyer Creek [Boyer River], and ascertaining the point at which that stream discharges from the Bluffs." James, we must note, did not arrive at the Council Bluff winter encampment until June, and he remarks in a footnote (p. 200) that succeeding notes, especially about the Omawhaws [Omaha Indians], and the last chapter of volume one and the first five chapters of volume two were from Say's notes; the statement of the trip up the Boyer starts off chapter six, but clearly the "and I" refers to Say. The writing style, the lack of specificity about plants, and the detailing of animals clearly constitute Say's writing style. The account says for April 14: "We saw numbers of the smaller species of rattle snake, [p. 375, lists reptiles seen at Engineer Cantonment, the campsite of the winter of 1819-1820, or at other indicated places on their journey. That list includes *Crotalus horridus*, a much larger species and *C. durissus* (probably a misnomer for some specimens of *C. horridus*)] which had, no doubt, but lately left their winter dwelling." On April 17 they returned to their tent where a soldier had killed three rattlesnakes while pitching the tent (the tent was erected April 15 and the party had to put blankets on their backs to travel because of the bluffs on the river). The opportunity was ripe for securing and preserving specimens; thus, a possible type locality is along the Boyer River in Crawford or Harrison County, Iowa, most likely Harrison County because the account suggests that they did not get too far upriver. But as I will show below, a more likely type locality is in Colorado.

In Nebraska today, the range of *Sistrurus catenatus tergeminus* is restricted to a small section of the extreme southeastern part of the state (Filmore, Lancaster counties, and Gage and Nemaha counties in 1891 according to Hudson, 1942). The James account gives several other references to the species in Nebraska and also associates them with prairie dog towns. As indicated below, I am surprised that they did not indicate that they were encountering or also encountered the prairie rattlesnake, *Crotalus viridis*, which usually is the rattlesnake associated with prairie dog towns. To further back up the expedition's report that *Sistrurus*

occurred in prairie dog towns is the statement at the top of volume two, page 48 of the Philadelphia edition; it reads, "We also captured a rattlesnake*, which like the *tergeminus*, we have found to inhabit a barren soil, and to frequent the villages of the *Arctomys* of the prairie [= prairie dog], but its range appeared to us confined chiefly to the vicinity of the Rocky Mountains . . ." The asterisk refers to the description of *Crotalus confluentus* [*C. viridis*] on page 48. Admittedly the failure to encounter *C. viridis* in Nebraska is puzzling, but perhaps that is because all of Say's notes covering that region were lost with the stolen saddlebags and the account from memory may not have been as good as one would like. What few prairie dogs (*Cynomys ludovicianus*) remain in Nebraska occur relatively far east, but do not overlap the current range of *Sistrurus catenatus tergeminus*. As late as 1900 a prairie dog colony was located near Fontanelle in Washington County, about 25 miles northwest of Omaha and the records show also that the prairie dog reached Jefferson County (Jones, 1964). But Nebraska is a heavily agricultural state and the transition of prairie to farmland may perhaps have eliminated *Sistrurus* from the bulk of the state. This is not an easy conclusion to reach because *Sistrurus catenatus* has survived agricultural activity in Illinois, Kansas, and Oklahoma.

On June 28 (vol. one, p. 485 of the Philadelphia edition), when the party was near Sterling, Logan County, Colorado, the account says, "About some sandy ridges, which we passed in the middle of the day, several miliary rattle snakes were seen, two of which were killed. These had been occasionally met with all along the Platte, but were by no means numerous." The term "miliary" is reference to *Sistrurus miliarius*, the pigmy rattlesnake of the southeastern states. On July 4 (vol. one, pp. 499-500 of the Philadelphia edition), at which time the party was somewhere between Platteville, Weld County, Colorado and just south of Brighton, Adams County, the account reads: "Rattle snakes of a particular species* [the * indicates the description of *Crotalus tergeminus* on p. 499] are sometimes seen in these villages [prairie dog villages]. They are found between the Mississippi and the Rocky Mountains, and appear to prefer unproductive soil, where their sluggish gait may not be retarded by the opposing obstacles of grass and weeds. Whilst exploring Boyer Creek, of the Missouri, in the spring of 1820, our party met with six or eight of them during one day's march on the prairie, and on our subsequent journey to the Rocky Mountains we several times encountered equal or even greater numbers, in the same space of time. This is the species of serpent which travellers have observed to frequent the villages of the prairie dogs, and to which they have attributed the unnatural habit of voluntary domiciliation with that interesting animal. . . . From the disparity in the number of plates and scales, and the greater size of the vertebral spots in this species than in the *C. miliarius* we have been induced to consider this a distinct species. Specimens are in the Philadelphia museum." Because they were still referring to "miliary rattlesnake" on June 28, and the July 4 description seems to be applied to snakes seen at that time, I believe that this is the most appropriate association of a date, place, and description to define the type locality of *Crotalus tergeminus*, notwithstanding the fact that opportunity to collect the snakes occurred first on the Boyer Creek trek in Iowa and that the locality is north of present-day distribution.

Masticophis flagellum testaceus

Mention of this snake is made in different places in the two versions of James' account and differ somewhat. The Philadelphia edition mentions the dis-

covery and description (vol. one, p. 48), the description immediately following that of *Crotalus confluentus*, whereas the London edition, as seen in Thwaites' presentation, reports *Coluber testaceus* in volume three, page 236 (p. 39 of Thwaites), and *Crotalus confluentus* appears on page 40 of Thwaites. From the reading of the James account, one might glean that this snake was taken on July 17, possibly July 18, but Bell, who was exacting in covering every day no matter how trivial a report, says clearly that hunters caught a large red snake on July 16. Wilson (1973) gives the type locality as "headwaters of the Arkansas near the Rocky Mountains = junction of Turkey Creek with the Arkansas River, 12 miles W Pueblo, Pueblo County, Colorado. Holotype lost." Other than the minor date detail, this seems adequately accurate when compared with the different accounts that mention the place where the species was discovered. I note that Wilson (1973) erroneously lists Carey and Lea as Peary and Lea as the publisher and fails to indicate that the type locality, as relating to Pueblo, was more specifically defined by Maslin (1953). A casual sketch of a snake's head made by Titian Ramsay Peale on 16 July 1820, which appears to be that of a *Masticophis flagellum*, is in the collection of Peale's drawings at the American Philosophical Society.

Cnemidophorus tessellatus

In the Philadelphia account by James this species is described as "Genus Ameiva. A. *Tessellata* Say. Tessellated Lizard." The London edition, published slightly later, says "Genus Ameiva—A. *tessellata*, Say Tessellated lizard." The holotype is lost.

Price (1986) cited the Philadelphia account; he indicates that literature up to 1949 used either spelling and also that Burt (1931) treated *C. tigris* and *C. grahamii* as junior synonyms of "*testellatus*" (Burt had emended the name to "*tessellatus*" based on the adjectival spelling and justified by article 39 of the International Code of Zoological Nomenclature). Whether the Philadelphia edition has a typographical error probably is a moot question, and article 32 of the International Code of Zoological Nomenclature (1985) probably would allow the single "l" spelling to prevail. Price (op. cit.) says that "*tesselatus* is derived from *tessella* (L., "little square stone")." Checklists, e.g., Stejneger and Barbour (1943) or Schmidt (1953) use "*tessellatus*," obviously considering the single "l" to be an error.

The entire matter of the nomenclature takes on a new perspective in a paper by Walker et al. (in press). What has been called *Cnemidophorus tessellatus* involves both diploid and parthenogenetic lizards, and Walker et al. show that the original type locality today apparently has no lizards that match the type description; hence they establish a neotype and new type locality for *tesselatus* and give the population at the original type locality a new name.

James' account is not clear on where the lizard was collected. Various authors have discussed the type locality, (Smith and Burger, 1949; Smith and Taylor, 1950; Maslin, 1950; Milstead, 1953) the problem being the names of creeks encountered en route, but the restriction of the type locality to Pueblo, Colorado by Maslin (1959) seems reasonable in terms of the general area through which they were passing. Maslin ascertained that the type locality should be restricted to "the junction of Fountain Creek and the Arkansas River, Pueblo Co., Colorado." Goodman and Lawson (1995) confirm the identity of the creek.

Bufo cognatus

Krupa (1990) gives the type locality as "The alluvial fans of the [Arkansas] River" in Prowers County, Colorado. The actual statement (James, vol. two, p.

190, Philadelphia edition) is "The alluvial margins of the river are gradually dilating as we descend . . ." The date of collection is July 29, 1820, and likely the specimen was taken around the camp in the evening because heavy rain had fallen on the 28th. From Bell's account of July 29 (Fuller and Hafen, pp. 204-205) the party apparently was a few miles west of Holly, Prowers County, which I here define as the type locality: Approximately 3 miles west of Holly, Prowers County, Colorado. Various checklists (e.g., Schmidt, 1953) have defined it as Powers County, but the correct name is Prowers County, the name used by Maslin (1959), Smith (1934), and Stejneger and Barbour (1943), among others.

Crotaphytus collaris

This species, described as *Agama collaris* in volume two, page 252 of the Philadelphia version of James, is mentioned in the September 5, 1820, narrative: "A beautiful species of lizard, (agama) is occasionally met with in this territory." Axtell (1989) discussed the type locality, which is an enigma. Axtell pointed out that James indicated (p. 251) that the party [the Bell party that followed the Arkansas River] had arrived at Mr. Glen's trading house near the Verdigris River about a mile above its confluence with the Arkansas. Stejneger (1890, p. 103) expressed the first opinion on the type locality: "The type of Say's *Agama collaris* came from the Verdigris River, near its junction with the Neosho River, Creek Nation, Indian Territory." Stejneger gave no explanation for his restriction. Stejneger and Barbour (1917, 1923, 1933, 1939, 1943) gave the restricted locality as "Verdigris River near its union with the Arkansas River, Oklahoma." Axtell goes on to say that most workers have accepted that type locality, or changed it only slightly, but Webb (1970) gives the type locality as "near Colonel Hugh Glenn's [both the London edition of James' account and Bell's account spelled it Glenn] Trading Post on the east bank of the Verdigris River about two miles above its confluence with the Arkansas River." According to Webb, this site is in Wagoner County, Oklahoma, about four miles ENE of Ft. Gibson (Muskogee County) near the Muskogee-Wagoner County Line. Note, however, that Ft. Gibson is east of the Grand River (= Neosho River) and the site indicated by Webb would be in either Cherokee or Muskogee County. More correctly he should have said WNW of Fort Gibson.

Axtell (1989) states that he visited the vicinity of Webb's inferred type locality, where the Verdigris has an exposed bluff where Glenn's Trading Post might have been, but no one living in the vicinity remembered anything about the post or its location. At the nearby town of Okay, Oklahoma, the science teacher and other residents Axtell questioned knew the lizard by the Oklahoma vernacular name of "mountain boomer," but agreed that they had not seen or heard of them in the vicinity of Okay. Axtell thus chose not to accept Webb's version because of the still unanswered site questions (personal communication) and provisionally accepted the Stejneger and Barbour (1917) type locality. I contacted Webb, who said that he well-remembered discussing the matter with Dr. A. O. Weese, an ecologist at the University of Oklahoma, who had edited the journal for that part of the expedition chronicled by Titian Ramsay Peale and suggested the type locality that Webb used, but that so far as Webb knew, substantiating information has not been published. In any case, I note that Webb (1970) showed records for *Crotaphytus collaris* in both Wagoner and Muskogee counties. The Bell party arrived at the trading post at 10 A.M. and left that morn-

ing, hardly time enough for Say to have done any collecting, and their subsequent trek was through low country, hardly a suitable habitat for *Crotaphytus*.

However, as noted for September 3 and 4, the account tells of passing rocky-topped hills. The map shown in Fuller and Hafen (1957), apparently constructed by the Bell party, shows the campsites. When the latitudes and longitudes of the map are compared with those of a modern-day map, the campsites of September 3 and 4 are NW of Muskogee, Oklahoma, or perhaps at Muskogee. Both sites are south of the Arkansas River, and definitely not along the Verdigris River. Although the map coordinates shown by Bell are inaccurate, the account is clear in relation to the Verdigris River. In July, 1996, I searched around Tullahassee and Porter, Wagoner County, areas just west of Okay, areas that I suspect may have been the type locality; I can verify that suitable habitat for *Crotaphytus* exists west of Okay.

The crux of the type locality problem, I believe, lies in how one reads the statement "A beautiful species of lizard (agama), is occasionally met with in this territory." My feeling is that the term "territory" really refers to the fact that Oklahoma, at that time, was part of Arkansas Territory. That the lizard was met with occasionally does not mean that it was necessarily seen and captured near Okay. I believe that I can infer that the lizard was likely taken in some of the rugged terrain west of Okay, possibly even as far northwest as Tulsa. But because the party reached the summit of the hills that divide the drainages of the Arkansas and Verdigris, and with the large hills near the Grand (Neosho) River in sight, I would guess that the lizard was secured perhaps somewhere southwest or northwest of Tullahassee, Wagoner County, Oklahoma on 4 September, 1820. In view of the ambiguities associated with the narrative, the Stejneger and Barbour (1917) statement seems the best that can be said, except that I would add that the type locality should read, "Verdegris River . . . Oklahoma, probably in Wagoner County."

Scincella lateralis

In volume two, page 324 of the Philadelphia account (no mention of the species is given in the London account presented by Thwaites, 1905) this species was described as *Scincus lateralis*. Brooks (1975) gives for the type locality "banks of the Mississippi River below Cape Girardeau [Cape Girardeau County] (the brackets are those of Brooks) Missouri." Brooks then goes on to say: "Holotype, U.S. Natl. Mus. 3152, collected by S. W. Woodhouse (not examined by author)."

The expedition had been to Cape Girardeau on the way west; they returned to Cape Girardeau October 10, 1820, and James (Philadelphia edition, p. 324) says "about November 1, 1820 Mssrs. Say, Graham, and Seymour had so far recovered their health, as to venture on a voyage to New Orleans, on their way home." Each of those men had apparently contracted malaria. "They left Cape Girardeau in a small boat, which they exchanged at the mouth of the Ohio River for passage on a steam boat [*Riverboat Yankee* (Stroud, 1992: 124)] about to descend. Mr. Peale, who had escaped the prevailing sickness, accompanied them. On his way down the Mississippi, Mr. Say observed the new animal described in the subjoined note.*" A footnote follows, continuing onto page 325, in which *Scincus lateralis* is described. The account (p. 325) says of *Scincus lateralis*: "occurred during our passage down the Mississippi to New Orleans, and proved to be specifically identical with specimens which I formerly collected in Florida and East Georgia." No mention is made of Woodhouse or of any land-

ings on the banks of the Mississippi. Furthermore Samuel W. Woodhouse was born in 1821, after the expedition was completed, and could not have collected the skink. Also, we must recall that specimens collected by the expedition were to be deposited in the Charles Willson Peale Museum in Philadelphia, not in Washington.

Stejneger and Barbour (1917, 1923) called the animal *Leiolopisma laterale* (Say), but later (1939) called it *Leiolopisma unicolor* (Harlan). That change, Stejneger (1934) explained, was because *Scincus lateralis* Say was preoccupied, having been used by Daudin (1803). Lonnberg (1896) showed that the specimen was actually a Mediterranean species, *Gongylus ocellatus* (Forskål, 1775), and that the available name for the North American species was *Scincus unicolor* Harlan (1827). The publication date for Harlan's name was corrected by Stejneger and Barbour (1939) to 1825, but they used the name *Leiolopisma unicolor*, giving the type locality as "Southern states." Schmidt (1953), however, gives the credit to Say, 1823, in Long's expedition and as volume two, page 324, with the site as "Banks of the Mississippi below Cape Girardeau, Missouri." I contacted Dr. George Zug at the U.S. National Museum of National History, who said that Doris (Doris Cochran, 1961) listed USNM 3152 as a type, but that she had listed a fair number of specimens that are *not* types. Further, he said, her specimen locality data far exceed those in the catalog. The catalog entry is "*Plestiodon* Arkansas River Dr. Woodhouse 21 1." Zug said, "reidentified, pencil entry in Doris' handwriting: Mo added to locality, also in pencil by Doris to note date when specimen was entered in the catalog." Zug thinks the specimen unlikely the type, although we have no way of tracking its origin beyond the original catalog entry. Thus the original version in James' account must stand, and the type locality should read "Likely just below Cape Girardeau, Cape Girardeau County, Missouri" with credit given to Say, 1823. I searched a number of habitats that seemed suitable for *Scincella* just below Cape Girardeau in July, 1996, but did not encounter the species.

MISCELLANEOUS COMMENTARY

One of the most remarkable things mentioned in the Long Expedition account appears in volume one, page 484 of the Philadelphia version for June 27, 1820. At that time, the party apparently was in what we now know as Logan County, Colorado, between Crook and Sterling (Goodman and Lawson, 1994) near the Platte River: "We observed in repeated instances, several individuals of a singular genus of reptiles (*Chirotos*. Cuv.) which, in form, resemble short serpents, but are more closely allied to the lizards, but being furnished with two feet. They were so active that it was not without some difficulty that we succeeded in obtaining a specimen. Of this (as was our uniform custom, when any apparently new animal was presented) we immediately drew out a description. But as the specimen was unfortunately lost, and the description formed part of the zoological notes and observations, which were carried off by our deserters, we are reduced to the necessity of merely indicating the probability of the existence of the *Chirotos lumbricoides* of naturalists, within the territory of the United States." Modern nomenclature would place *Chirotos* in the genus *Bipes*, a lizard genus known only from western Mexico and Baja California. A justification of this remarkable observation was suggested by Campbell (1980). Support for the validity of the observation was presented by Dundee (1980), who was told by a farm boy in the western Nebraska sandhills, and apparently familiar with all of

the lizards on his home area, that two-legged lizards were occasionally found there, especially when digging post holes or pulling up old fence posts. But Gans and Papenfuss (1980), who worked extensively with amphisbaenians, to which group *Bipes* belongs, report that all species they have encountered were rather sluggish and easily caught and doubted very much that the Long party had encountered such an animal. Supplemental to the Long Expedition account are Taylor's (1938) remarks strongly suggesting that *Bipes* might occur in Arizona.

But how do we explain the observation? Say was noted for being meticulous in his observations and the statement "We encountered" suggests that indeed other members of the party saw the animal. Clearly some very intensive collecting in the Logan County area and the Nebraska sandhills is needed to try to verify the expedition's narrative. Campbell (1980) did suggest that possibly the species may have been relict in the Nebraska-Colorado area and perhaps close to extinction. Even if the original notes had not been stolen, the lack of a voucher specimen would still place the observation in doubt.

A remarkable oversight of the Long Expedition seems to me to be Say's failure to describe a species of *Phrynosoma*; a horned lizard certainly is an animal not easily forgotten and the party obviously saw *Phrynosoma* because, on several occasions, the account refers to orbicular lizards, the term used in those days for horned lizards. On or about July 15, 1820, probably near Fountain Creek, perhaps two miles south of Fountain, El Paso County, Colorado (Philadelphia edition, vol. 2, p. 35) the account says, "Orbicular lizards were found about this camp, and had been once or twice noticed near the base of the mountain." In the Philadelphia edition (vol. two, p. 51) is the statement, "We had proceeded eight or ten miles from our camp. . . . Here the barren cedar ridges are succeeded by still more desolate plains, with scarce a green, or living thing upon them, except here and there a tuft of grass, an orbicular lizard, basking on the scorching sand. . . ." This was July 19, probably close to Pueblo, Colorado. Earlier, on August 6, 1819, Say and a party journeyed westward up the Kansas River (Kaw River) and in the Philadelphia edition (vol. one, p. 138) the account says: "In ascending the Konzas river [Kansas River], one hundred, or one hundred and twenty miles from the Missouri, you discover numerous indications, both in the soil, and its animal and vegetable productions of an approach of that Great Sandy Desert, which stretches eastward from the base of the Rocky Mountains. You meet there with the orbicular lizard or 'horned frog', an inhabitant of the arid plains of New Mexico." James' and Long's party, on August 1, 1820, after the parties had split, were on Ute Creek east of Yates in Harding County, New Mexico and volume two, pages 89-90 of the Philadelphia edition say, "Several rattlesnakes were seen and many orbicular lizards. These are evidently of two distinct species, differing from each other in the length of the spines and position of the nostrils. Scarce any two of either species are precisely similar in colour, but the markings are permanent. Both species possess in a slight degree, the power of varying the shades of colour. We could find no conspicuous difference marking the different sexes in the species with long spines; the other we have not have sufficient opportunity to examine." Judging by today's horned lizard distribution, they most likely were seeing *Phrynosoma cornutum* and *P. douglasi*.

From so many mentions of orbicular lizard, one would think that surely Say would have described at least one, possibly two species, the latter if James' and Long's party had collected specimens. Coues (1895, vol. 2, p. 431) says that Zebulon M. Pike wrote in his journal for October 24, 1806: "and strange as it may

appear, I have seen the wishtonwish, the rattlesnake, the horn frog [*Phrynosoma douglasi*, with which the prairie abounds . . .] (The brackets are by Coues)." Coues is wrong about *Phrynosoma douglasi* (sic) because on October 24 Pike was between Larned and Great Bend, Kansas; *douglasi* does not occur in Kansas, only *P. cornutum*. Say quite likely had seen the paper by Barton (1806), who associated a specimen taken by the Lewis and Clark Expedition with *Lacerta orbicularis* (Linnaeus, 1758). Price (1990) has pointed out that *L. orbicularis* is a senior synonym of *Phrynosoma orbiculare*, and that Barton (1806) called his specimen "Lacerta *Tapajaxin*," but deferred a full description to another paper. That paper (Barton, 1809) is a description of a salamander, *Ambystoma maculatum*. Thus Barton's name *L. Tapajaxin* is a nomen nudum for *Phrynosoma cornutum*, and credit for *P. cornutum* goes to Harlan (1825). Most likely Say thought that the orbicular lizards encountered were a species that Barton had already described. Had the two different forms mentioned by the Long and James party in New Mexico come into Say's hands, quite likely Say would have described at least one horned lizard.

All in all, a reader of the Long Expedition can only curse the deserters who fled with Say's saddlebags; otherwise an accurate zoological account would have been a significant contribution from the expedition team.

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