

NOTES ON THE BONNEVILLE BASIN QUATERNARY MOLLUSCA COLLECTED  
BY RICHARD ELLSWORTH CALL IN THE U. S. GEOLOGICAL SURVEY-U. S.  
NATIONAL MUSEUM COLLECTIONS

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INTRODUCTION

In his "Quaternary and Recent Mollusca of the Great Basin" (1) R. E. Call (2) stated that "The material herein reported upon was derived in part from collection made by the Great Basin Division of the United States Geological Survey and in part from personal collections made under the auspices of the same organization." Dates of collection and collector are not indicated in Call's paper, and in many cases locality data are rather vague by modern standards.

Through the courtesy of Dr. Dwight W. Taylor, U.S. Geological Survey, I was able to spend a few hours studying some (3) of the Call material in Washington in June 1951. Examination of the original field labels partially clears up some of the ambiguity in the Call report.

BACKGROUND OF THE CALL REPORT

Before discussing the "Call Collection" itself it will be advantageous to present such background as can be pieced together from the Survey's annual reports for the period involved.

The Division of the Great Basin was established by the Survey in 1880 with G. K. Gilbert in charge. (4) At this time the Survey was engaged in studies on the Pleistocene of the mid-west. Gilbert believed that the study of the

ancient lakes of the Great Basin, which he had investigated during his tenure with the Wheeler and Powell surveys of the '60's, would throw independent light on the problem of climatal change during the Quaternary. He accordingly made the study of more ancient lakes a major subject for investigation by his Division.

Gilbert early recognized that the fauna of these lakes might contribute valuable data and collected samples of mollusks from the basin sediments whenever possible. These specimens were submitted to R. E. Call for identification and study. "The questions suggested by his report," wrote Gilbert, (5) "are of such nature as to indicate that the invertebrate faunas of Lakes Bonneville and Lahontan should be studied together, and in connection with the modern faunas of the region and this study he has consented to prosecute . . . spending a few weeks in the field to familiarize himself with the geologic relations of the fossiliferous strata."

Gilbert's suggestion that the fossil faunas be compared with the modern (Holocene) ones, and the submission of the specimens to an experienced field malacologist who would be made familiar with the stratigraphic conditions reveals an insight far in advance of his time.

The Great Basin Division was in existence only between 1880 and 1883. (6) Some office work was done in Washington in 1884-85, devoted

to the preparation of final reports.<sup>(7)</sup> All field work was done within the period indicated above. A Divisional office was established in Salt Lake City in 1880, staffed by Gilbert, I. C. Russell, H. A. Wheeler, Gilbert Thompson, Albert L. Webster, R. E. Gill, and Frederick D. Owen. The field work for 1880, divided between two parties, involved sites in Jordan, Utah, Rush, Cedar, Tooele valleys, part of the overland stage road to Old River Bed, the north shore of Sevier Lake, Preuss valley, and the Escalante Desert. Later in the year Russell, Wheeler and Webster visited localities in Cache valley and examined deltas at Logan, Box Elder, and Ogden rivers. Russell visited the point of overflow of Lake Bonneville at Red Rock Pass, while Thompson did work in the vicinity of Drum Mt., House Range, Deep Creek settlement, Tecoma, Terrace Station, Kelton, and Cache and Gentile valleys.<sup>(8)</sup> Field work in 1881 and 1882 was largely confined to Nevada.<sup>(9)</sup> In July 1883, the final year of the Division, Gilbert and Call spent some time in the Bonneville Basin together.<sup>(10)</sup>

#### THE CALL COLLECTION

The material here referred to as the "Call Collection" consists of two drawers of specimens labeled "Call's Types" housed among the Survey collections in Dr. Taylor's office in the Natural History building of the National Museum. Despite the label no primary type material is present.<sup>(11)</sup> Most of the lots in the collection bear printed labels reading as follows:

Field Label  
United States Geological Survey  
Division of the Great Basin

No. \_\_\_\_\_ Date \_\_\_\_\_ 188\_\_  
Locality \_\_\_\_\_  
Collector \_\_\_\_\_

A few lots bear labels of the Powell Survey, reading:

United States Geological and Geographical Survey  
of the Colorado River  
J. W. Powell in charge

Dates are not always filled in, and there are a number of the lots which do not indicate the name of the collector. It is possible that much, if not all, of this latter material was obtained by Call himself, perhaps during the 1883 trip with Gilbert.

The following notes follow the systematic arrangement of Call's 1884 report. Only the Bonneville Basin material is included as time did not permit a study of the Lahontan specimens. Data not included by Call are indicated by special brackets:  $\approx \#$ .

MARGARITANA MARGARITIFERA L. (= *Margaritifera margaritifera* L.)  
 $\approx$  Smithsonian No. 102560. Port Neuf River, Idaho.  $\#$  No date or collector. The specimen is Holocene.

ANODONTA NUTTALLIANA Lea  
 $\approx$  Smithsonian No. 102558. Sevier River, Utah.  $\approx$  I. C.  $\approx$  Russell.  $\#$  No date. Specimen is Holocene.

$\approx$  Smithsonian No. 111557. Sevier River, Utah.  $\#$  I. C.  $\approx$  Russell, 1881. Specimen is Holocene.

Call remarks that specimens were dredged in Utah Lake in August 1883, but none of these are present in the Survey material.

SPHAERIUM DENTATUM Haldeman (probably = *S. striatum* Lamarck)  
 $\approx$  Smithsonian No. 111670  $\approx$  Two lots bear this number:  
(a). Sevier Desert [G. K.]  $\approx$  Gilbert.  $\#$  No date. Post-Bonneville.  
(b). Sevier Desert,  $\approx$  10 mi. west of Desert. H. A. Wheeler.  $\#$  No date. Post-Bonneville.

≠ Smithsonian No. 111671. Banks of Sevier River, 5 mi. west of Deseret. ≠ [G. K.] Gilbert. No date. Post-Bonneville.

*HELISOMA TRIVOLVIS* Say (= *H. subcrenatum* (Carpenter))

≠ Smithsonian No. 111668. ≠ Three lots bear this number:

(a). Sevier Desert, ≠ 10 mi. west of Deseret. H. A. Wheeler, 1880 ≠ Post-Bonneville.

(b). Sevier Desert [I. C.] ≠ Russell. ≠ No date. Post-Bonneville.

(c). Sevier Desert ≠ G. K. Gilbert. ≠ No date. Post-Bonneville.

≠ Smithsonian No. 111706. Banks of Sevier River, 5 mi. west of Deseret. ≠ [H. A.] Wheeler, 1880 ≠ Post-Bonneville.

≠ Smithsonian No. 111713 ≠ Near Salt Spring Creek. [G. K.] ≠ Gilbert ≠ No date. Upper Bonneville.

*GYRAULUS PARVUS* (Say)

≠ Smithsonian No. 111681. Sevier Desert. G. K. Gilbert. ≠ No date. Post-Bonneville.

≠ Smithsonian No. 111697. ≠ Same data

≠ Smithsonian No. 111705. ≠ Same data.

In the text Call (p. 370) cites this species as a single locality, "living in a small pond at Fort Douglas, near Salt Lake City," but in his table 3 (p. 378) he cites it as "Post-Bonneville, semi-fossil."

*LIMNAEA STAGNALIS* L. (*Lymnaea stagnalis* L.).

≠ Smithsonian No. 111743. ≠ Sevier Desert, ≠ 10 mi. west of Deseret. ≠ No date or collector. Post-Bonneville.

*LIMNOPHYSA PALUSTRIS* Müller (= *Lymnaea palustris* (Müller))

≠ Smithsonian No. 102574. Brackish springs near Saylow I spelling? I Ranch, Promontory, Utah. ≠ [G. K.] Gilbert. ≠ No date.

≠ Smithsonian No. 102575. Skeen's Ranch, Promontory, Utah. ≠ [G. K.] ≠ Gilbert. ≠ No date.

≠ Smithsonian No. 111673. ≠ Two lots bear this number:

(a). Sevier Desert, Utah. [I. C.] ≠ Russell ≠ No date. Post-Bonneville.

(b). Sevier Desert, ≠ 10 mi. west of Deseret. [H. A.] Wheeler, 1880. ≠ Post-Bonneville. ≠ Smithsonian No. 111712. ≠ Near Salt Spring, Utah. [G. K.] ≠ Gilbert. ≠ No date. Upper Bonneville.

≠ Smithsonian No. 111737. Banks of Sevier River, 5 mi. west of Deseret. H. A. Wheeler, 1881. ≠ Post-Bonneville.

*LIMNOPHYSA BONNEVILLENSIS* Call (= *Lymnaea bonnevillensis* (Call))

≠ Smithsonian No. 111675. ≠ Near Willow Springs, Utah. ≠ G. K. Gilbert. ≠ No date. Upper Bonneville.

≠ Smithsonian No. 111682. Mouth of Judd Creek [Utah or Nevada?] G. K. Gilbert. ≠

≠ Smithsonian No. 111683. Matlan Pass [Nev.?] G. K. Gilbert. ≠ No date. Upper Bonneville?

≠ Smithsonian No. 111686. ≠ Kelton, Utah. [G. K.] Gilbert ≠ No date. [Topotypes]. Upper Bonneville.

≠ Smithsonian No. 111696. ≠ Utah. ≠ G. K. Gilbert. ≠ No date. Upper Bonneville.

≠ Smithsonian No. 111698. Station Butte, Utah. [G. K.] Gilbert. ≠ No date. Bonneville tufa.

≠ Smithsonian No. 111700. Base of Lava bed Hot Springs, Utah. [G. K.] Gilbert. ≠ Upper Bonneville.

≠ Smithsonian No. 111704. ≠ Fish Spring Valley, Utah, ≠ from top of "Yellow Clay" near Center Butte. [G. K.] Gilbert, Dec. 16, 1879. ≠ Upper Bonneville. [Label is of Powell Survey.]

≠ Smithsonian No. 11707. Near Willow Creek, Utah. ≠ G. K. Gilbert. ≠ No date. Upper Bonneville.

*PHYSA GYRINA* Say

≠ Smithsonian No. 102576. Brackish Springs, Promontory, Utah. [G. K.] Gilbert. ≠ No date.

≠ Smithsonian No. 102577. Skeen's Ranch, Promontory, Utah. G. K. Gilbert. ≠ No date.

≠ Smithsonian No. 111711. ≠ Near Salt Springs, Utah. [G. K.] Gilbert. No date. Upper Bonneville.

PHYSA HETEROSTIOPHA Say

≠ Smithsonian No. 111690. Near Willow Springs, Utah [G. K.] Gilbert. ≠ No date.

≠ Smithsonian No. 111751. ≠ Sevier Desert, ≠ 10 mi. west of Deseret. ≠ [H. A.] Wheeler. No date. Post-Bonneville.

PHYSA LORDI Baird

≠ Smithsonian No. 111732. ≠ Sevier Desert, Utah. [I. C.] Russell. No date. Post-Bonneville.

VALVATA VIRENS Tryon (= *V. humeralis* (Say))

≠ Smithsonian No. 111672. ≠ Sevier Desert, Utah. ≠ G. K. Gilbert ≠ No date. Post-Bonneville.

≠ Smithsonian No. 111678. ≠ Sevier Desert, Utah. No date or collector. Post-Bonneville.

≠ Smithsonian No. 111693. ≠ Sevier Desert, Utah. G. K. Gilbert. No date. Post-Bonneville. [Original label reads *Valvata sincera* Say].

VALVATA SINCERA var. UTAHENSIS Call (= *V. utahensis* Call).

≠ Smithsonian No. 111703. Sevier Desert, Utah. G. K. Gilbert. ≠ No date. Post-Bonneville. [Original label reads *Valvata virens* var. *utahensis*. Call].

In addition to the above there are also 45 lots of unidentified and uncataloged material. Some of these carry field numbers or the designation "Section \_\_\_\_\_ No. \_\_\_\_\_". The following 7 lots are from the Bonneville Basin.

[*Carinifex*.] Rush Valley surface, near Warm Springs.

[*Lymnaea*.] White Marl below P.B. [Provo Bench?] G. [Gilbert?] Sept. 7, 1880.

[*Lymnaea*.] Lake beds of bars NN Preuss Valley. G. K. G [ilbert]. Sept. 7, 1880.

[*Lymnaea*.] Old River Bed, near mouth of Judd Creek. No date or collector.

[*Amnicola*.] White marl below P. B. [Provo Bench?] G. [ilbert?] Sept. 7, 1880.

[*Amnicola*.] Field No. 5304. Old River Bed above purple volcanic sand. G. K. G. [ilbert]. No date.

[*Valvata*.] Field No. 5304. 3 vials. Old River Bed near mouth of Judd Creek. No date or collector.

REFERENCES AND NOTES

(1) U. S. Geol. Survey, Bull. 11, 1884, pp. 355-419.

(2) It is regrettable that so few biographical data are seemingly available on Call. He did pioneer work on the mollusks of Indiana, Iowa, and Kansas. His work in Iowa constituted the first on the molluscan fauna of the extensive loess deposits in that state. From Stephen S. Visher's "Indiana Scientists" (Ind. Acad. Sci., 1951) I have obtained the following data.

Born Brooklyn, N. Y., May 13, 1856, died 1917. A. B., Indiana 1890; A. M., 1891; M. D., Hospital College of Medicine, Louisville, Ky., 1893; Ph.D. Ohio (Athens), 1895. Supt. schools, Lawrenceburg, Indiana, 1895-98; N. Y. city high schools, 1898-1917.

From Call's published work it becomes evident that he was largely interested in mollusks as living organisms in their natural environment. More than once he speaks out against the "closet naturalist," mentioning in particular the "Philadelphia school," perhaps a distant rumbling of the Cope-Marsh-Hayden feud. Call's systematic work seems on the conservative side, probably the result of his being well aware of the contrast in variation as encountered in the field and in selected museum lots. Nothing is apparently known as to Gilbert's reasons for the selection of Call to study the Bonneville material. There may be correspondence in the U. S. G. S. files

which would throw light on this point.

(3) Most of the Call Collection is now at the Museum of Comparative Zoology, Harvard University (W. J. Clench, personal communication). According to D. W. Taylor (personal communication, Oct. 4, 1963) there is "in more than one case a holotype in Cambridge and a holotype in Washington for the same species." How much Pleistocene Great Basin material is present at MCZ is unknown to me at this writing.

- (4) Second Annual Report for 1887-81 (1882).
- (5) Fourth Annual Report for 1882-83 (1884).
- (6) Fifth Annual Report for 1883-84 (1885).
- (7) Sixth Annual Report for 1884-87 (1885).
- (8) Second Annual Report for 1886-91 (1882).
- (9) Third and 4th Annual Reports for 1881-82 (1883) and 1882-83 (1884).
- (10) Fifth Annual Report for 1883-84 (1885).

(11) Call's primary type material is apparently distributed between the National Museum and the MCZ. Cf. Note 3. In U.S.G.S. Bull. 11 Call described four new taxa from the Great Basin. In volume 5 of the Proceedings of the Davenport Academy of Natural Sciences he re-described these forms, elevating two to full specific rank.

Bull. 11 (1884)	Davenport Acad. (1886)
Valvata siucera	Valvata utah-
var. utahensis	ensis sp. nov.
nov. var.	
Amnicola dalli	Amnicola dalli
sp. nov.	sp. nov.
Radix ampla var.	Radix utahensis
utahensis var.	sp. nov.
nov.	
Limnophysa bon-	Limnophysa bon-
nevillensis	nevillensis
sp. nov.	sp. nov.