QE
801
H3

A

000826487

LC SOUTHERN REGIONAL LIBRARY FACILITY

Hanna, G. Dallas

Fossil Mollusks from the
John Day Basin in Oregon

THE SOUTHWEST MUSEUM
MUSEUM HILL
AVENUE 46 AND MARMIONWAY
LOS ANGELES, CALIF.

UNIVERSITY OF OREGON PUBLICATION
VOL. I AUGUST, 1920 NO. 6

FOSSIL MOLLUSKS FROM THE
JOHN DAY BASIN IN
OREGON

CONTAINED IN THE CONDON MUSEUM OF THE
UNIVERSITY OF OREGON

BY
G. DALLAS HANNA

UNIVERSITY OF OREGON PUBLICATION

The University of Oregon Publication Series is offered in exchange for the publications of learned societies and institutions, universities, and libraries. Address inquiries to MANAGER, UNIVERSITY PRESS, EUGENE, OREGON. Matter sent in exchange should be directed to LIBRARIAN, UNIVERSITY OF OREGON, EUGENE, OREGON.

Vol. 1. No. 1.	The Efficiency of Oregon Children in the Tool Subjects as Shown by Standard Tests. By Chester Arthur Gregory. pp. 51. Tables. November, 1919.....	\$1.00
No. 2.	An Experimental Investigation of the Process of Choosing. By Raymond H. Wheeler. pp. 59. January, 1920.	1.00
No. 3.	Earthquakes in Oregon. By Warren Dupre Smith. Reprint. Map. February, 1920	.25
No. 4.	The Foster-Child Fantasy. By Edmund S. Conklin. Reprint. March, 1920	.25
No. 5.	The Synaesthesia of a Blind Subject. By Raymond H. Wheeler. pp. 61. May, 1920	1.00

UNIVERSITY PRESS PUBLICATIONS COMMITTEE.

Eric W. Allen, Manager University Press, Chairman.		
F. G. Young	W. F. G. Thacher	E. L. Packard
H. D. Sheldon	A. R. Sweetser	M. H. Douglass

FOSSIL MOLLUSKS FROM THE JOHN DAY BASIN IN OREGON

CONTAINED IN THE CONDON MUSEUM OF THE
UNIVERSITY OF OREGON

BY
G. DALLAS HANNA

CONTENTS

Introduction.
Species in the University of Oregon Collection.
Synopsis of John Day Land and Fresh-water Mollusks.
Explanation of plate.

INTRODUCTION

Through the courtesy of Dr. Earl L. Packard, of the Department of Geology, University of Oregon, I have had an opportunity to study the collection of fossil land shells in that institution from the John Day Basin, eastern Oregon. It was assembled by Prof. Thomas Condon, the discoverer of the famous deposits of mammal remains in Oregon. Altogether there are 118 specimens in the collection. Many of them are fragmentary or immature and cannot be identified with certainty. Eleven species are represented, two of which are believed to be new. These belong to genera found for the first time in the Miocene deposits of the western United States and one of them was not previously known to exist in North America, either Recent or fossil. The collection also includes specimens of species which were previously known only from type specimens. The collection is therefore one of the most important which has come to light from this region.

In order that references to all of the described John Day species may be available to western students there has been added to the account of this collection a review of all known published records. This has been compiled from the author's card index.

Fossil Mollusks From the John Day Basin in Oregon

The collecting of mollusks in the region has apparently been merely an incident to those persons in search of mammal remains and as a consequence definite stratigraphical data have not been recorded. This is unfortunate because it makes it impossible to assign the several species to the geologic subdivisions recognized by the vertebrate paleontologists. No doubt much in the way of correlating this deposit with those elsewhere can be accomplished when the region shall be explored with mollusks the chief objects in mind.

SPECIES IN THE UNIVERSITY OF OREGON COLLECTION

***Gastrodonta imperforata* Hanna**

Plate 1, figures 1a and 1b

One of the four specimens of this species in the collection is almost perfect and is figured in two views because of its superiority to the type. The axis is completely imperforate and there is a peculiar twist to the columellar wall which recalls *Sagda* of the West Indies. It may in fact prove to be that the John Day shells belong in or near that genus but the evidence is not considered sufficient to warrant such disposition at present. The shell substance of *G. imperforata* is exceedingly thin and delicate and the growth striae are uneven and rather coarse. No trace of spiral striation can be found.

***Epiphragmophora antecedens* Stearns**

Two imperfect specimens and two fragments have been referred to this species. In no case is the aperture preserved so the identification is somewhat doubtful.

***Epiphragmophora dubiosa* Stearns**

Two imperfect specimens are in the collection.

***Epiphragmophora marginicola* (Conrad)**

The finding of a specimen of this, the first John Day shell to be described, is very interesting. Conrad's type was a young shell as shown by his figure and his description was so meager that identification therefrom seemed hopeless. He says "Depres-

sed; spire scarcely raised above the margin of the last volution; whorls 6, convex-depressed; shoulder of last whorl subangular; umbilicus small; aperture obliquely subquadrate. Locality, Bridge Creek, Oregon.”*

The University of Oregon specimen conforms to the above description almost precisely although it is imperfect. The last whorl at least is missing so that the character of the completed aperture cannot be ascertained and it is believed Conrad's shell was in the same condition. It was thought possible that we actually had here his type, so great is the resemblance, and this may in fact be the case. But if so his drawing fails to show the remnants of a broken whorl about the margin. The shell appears to belong to the Helicidae and it is believed that when a complete specimen is available it will be found to be related to the *mormonum* group of *Epiphragmophora*. The genus *Zonites* in which the species was originally placed is not now recognized as having existed in the United States and the shell certainly does not furnish any evidence to show that it belongs to that family.

***Polygyra dalli* (Stearns)**

By far the greater part of all land shells thus far collected in the John Day region belong to this species. The University of Oregon Collection contains 90 shells which have been referred here; among them are many which are well preserved. Many others are fragmentary or young and therefore they have been identified with doubt.

***Polygyrella polygyrella* (Bland and Cooper)**

This species lives in the mountains of Idaho at the present time but it was with considerable surprise that a specimen was found in the Oregon Miocene. The shell is not perfect; one whorl at least has been broken away but the characters of *Polygyrella* are well exhibited. It seems to be somewhat larger than the Recent *P. polygyrella* with the same number of whorls but there is considerable variation in this respect in Recent shells. Perhaps when the aperture shall have been found intact the fossil form will be found to be distinct but without this portion of the shell it is best considered to be the same.

*Conrad, T. A., Am. Jour. Conch. Vol. 6, 315, p. 13, fig. 9. 1870-71

Fossil Mollusks From the John Day Basin in Oregon

***Ammonitella lunata* (Conrad)**

Ten more or less imperfect specimens are in the University of Oregon Collection.

***Pyramidula mascallensis* Hanna**

Four imperfect specimens are in the collection. They exhibit the very flat character of the whorls above in excellent manner.

***Oreohelix lecontei* Stearns**

One specimen with four and a half whorls intact is in the collection. At least one complete whorl has been lost. And the very thin shell substance has been lost on all but the first three whorls.

***Helicina oregona* n. sp.**

Plate 1, figures 3a, 3b and 3c

Shell consisting of a little over six whorls with the sutures between them but little impressed. Spire elevated and sides somewhat convex. Last whorl not depressed below the margin of the one preceding. Spire covered with a thin layer of material which is uniformly raised into ribs and of which there are nine or ten to the millimeter on the last whorl. These ribs do not extend to the base of the shell. Aperture oblique, about 45 degrees with the axis. Outer lip reflected and thickened outside with callous material. The columella makes a peculiar twist at its junction with the base of the shell. This junction is slightly below the level of the base when viewed spire down. There is no definite carina at the margin of the body whorl.

Measurements of type: greatest diameter 7.2 mm.; least diameter, 6.0 mm.; altitude parallel to axis 4.5 mm.

Type number 12, University of Oregon Collection from the John Day Oligocene (?). No other specimens.

The type is very well preserved and does not seem to be closely related to any other known *Helicina*. The presence of the genus in the Oligocene of the United States has not previously been known and it is another instance of tropical forms which flourished much north of their present range at that time. The ribbed surface of the shell recalls *H. rugosa* of Jamaica and *H. rugulosa* of the Society Islands but it is not in reality closely related to either of

Fossil Mollusks From the John Day Basin in Oregon

these forms. Neither does it resemble except in gross characters the United States Recent species *H. occulta* and *H. orbiculata*, and the fossils *H. ballista* and *H. tampae* of Florida. It is one of the most interesting Tertiary land shells thus far found, ranking with *Ammonitella*, *Boysia*, *Protoboysia*, *Helicostyla* and *Rhiostoma*.

***Rhiostoma americana* n. sp.**

Plate 1, figures 4a and 4b

Shell composed of three whorls, the last increasing in size very rapidly and projecting free of the spire. Spire elevated conic with the whorls angulated acutely. Sutures deeply impressed. A revolving lamella on the palatal wall of the last whorl continuing and increasing in size to the aperture where it probably formed a tooth. The columellar wall also had a tooth. The junction of the columellar and basal walls acutely angular at the aperture. Umbilicus apparently widely open.

Measurements of type: greatest diameter, 8.50 mm.; least diameter, 5.0 mm.; altitude parallel to axis 7.0 mm. (The measurements of a complete shell would somewhat exceed these.)

Only the type specimen has been found. It is from the John Day Oligocene (?) and is deposited in the University of Oregon. (Type number 13). Unfortunately it is largely a cast and leaves much to be learned of the shell. However the characters are so unique that no hesitancy is felt in making it the type of a new species. Its resemblance to the Siamese *Rhiostoma* Benson is close and although the complete shell may show that it does not belong in that genus it seems best to so refer it now. It is not related to *Boysia* and *Protoboysia*, genera with Indian affinities first added to our fauna in 1914.*

The finding of this, apparently a land operculate with living Asiatic relatives, in the United States Oligocene (?) is very remarkable and furnishes a basis for much interesting speculation. The groups of mollusks which then lived here are no less strange to the conchologist than the mammals are to the mammalogist.

*Cockerell, T. D. A., Land Shells from the Tertiary of Wyoming. Bull. 33 Amer. Mus. Nat. Hist. p. 323, 1914.

Fossil Mollusks From the John Day Basin in Oregon

SYNOPSIS OF JOHN DAY LAND AND FRESH-WATER
MOLLUSKS

For full accounts of the geological, stratigraphical, and paleontological features of the region see, Merriam, J. C., A Contribution to the Geology of the John Day Basin; University of California Publications, Bulletin of the Department of Geology, vol. 2, No. 9, pp. 269-314, April 1901. Also, same author, and same series of publications, vol. 5, No. 1, pp. 1-64, December, 1906. Also Merriam and Sinclair, Tertiary Faunas of the John Day Region; same series, vol. 5, No. 11, pp. 171-205, October 1907. The latter has a fairly complete bibliography.

Ammonitella lunata (Conrad)

Planorbis (*Spirorbis*?) *lunatus*. Conrad, Am. Jour. Conch. Vol. 6, p. 315, pl. 13, fig. 8, 1870-71. (Condon Collection. Bridge Creek, Oregon).—White, 3rd. Ann. Rep. U. S. Geol. Surv. p. 448, pl. 32, figs. 24-25, 1880-81. Hannibal, Proc. Mal. Soc. London, Vol. 10, p. 159, 1912. (The species here is rightly ascribed to *Ammonitella* and considered distinct from *A. yatesi* Cooper, a Recent species. Stearns name was made synonymous. The species is stated to be from "Oligocene, John Day series, Oregon.")

Gonostoma yatesi (Cooper) Stearns, (in White). U. S. Geol. Surv. Bull. 18, p. 16, pl. 3, figs. 8-12, 1885. Cope and Condon collections.

Ammonitella yatesi praecursor Stearns. Proc. Wash. Acad. Sci. Vol. 2, p. 656, pl. 35, figs. 8, 12, 1900. (Same figures reproduced as in U. S. Geol. Surv., Bull. 18, cited above.)—Stearns, Science n. s. Vol. 15, p. 153, 1902. (Mentioned as in the University of California Collection.)—Stearns, Univ. of Calif. Publ. Geol. Vol. 5, No. 3, p. 67, 1906. (Mentioned.)

Ammonitella lunata (Conrad) Hanna, Kans. Univ. Sci. Bull., Vol. 13, p. . . . (In the University of Kansas Collection). Mentioned herein as being in the University of Oregon Collection.

Epiphragmophora antecedens Stearns.

Helix (*Aglaia*) *fidelis* Gray. Stearns, (in White) U. S. Geol. Surv. Bull. 18, p. 14, pl. 3, figs. 1-3, 1885.

Epiphragmophora fidelis antecedens Stearns. Proc. Wash. Acad. Sci. Vol. 2, p. 653, pl. 35, figs. 1-3, 1900. (Same figures reproduced as in U. S. Geol. Surv. Bull. 18, cited above.)—Stearns, Science, n. s. Vol. 15, p. 153, 1902. (Mentioned as in the University of California Collection.)—Stearns, Univ. of Calif. Publ. Geol. Vol. 5, p. 67, 1906. (Mentioned.)

Fossil Mollusks From the John Day Basin in Oregon

Epiphragmophora antecessens Stearns. Hanna, op. cit. (Mentioned as being in the collection of the University of Kansas.)—Mentioned herein as being in the University of Oregon collection.

Epiphragmophore dubiosa Stearns. Science, n. s. Vol. 15, p. 153, 1902. (Original description.) (In the University of California Collection.) Stearns, Univ. of Calif. Publ. Geol. Vol. 5, p. 69, figs. 3-4, 1906. (Original description repeated and figures provided.)—Hanna, op. cit. (Mentioned as being in the University of Kansas Collection.)—Mentioned herein as being in the University of Oregon Collection.

Epiphragmophora marginicola (Conrad).

Helix (*Zonites*) *marginicola* Conrad Am. Jour. Conch., Vol. 4, p. 315, pl. 13, fig. 9, 1870-71. (Bridge Creek, Oregon, Condon Collection. White, 3rd Ann. Rep. U. S. Geol. Surv. p. 453, pl. 32, fig. 34, 1880-81.

Epiphragmophora marginicola Conrad. Mentioned herein as being in the University of Oregon Collection.

Gastrodonta imperforata Hanna, op. cit.

(Original description.)—Mentioned herein as being in the University of Oregon Collection.

Helicina oregona n. sp. Described herein.

Lymnaea stearnsi Hannibal.

Limnaea maxima Stearns, Science, n. s. Vol. 15, p. 154, 1902. Stearns, Univ. of Calif. Publ. Geol. Vol. 5, p. 70, fig. 1, 1906.

Lymnaea stearnsi Hannibal. In Baker, Lymnaeidae of N. and Mid. America, p. 102, pl. 17, fig. 11, 1911. (New name for *L. maxima* Stearns, a name used in varietal sense by Collin, Ann. Soc. Mal. Belg. 7, p. 94, 1872.)—Hannibal, Proc. Mal. Soc. Lon. 10, p. 143, 1912. (Mascall Miocene).

Oreohelix lecontei Stearns. Science, n. s. Vol. 15, p. 154, 1902. Stearns, Univ. of Calif. Publ. Geol. Vol. 5, p. 68, fig. 2, 1906. Mentioned herein as being in the University of Oregon Collection.

Polygyra dalli (Stearns.)

Helix (*Monodon*) *dalli*, Stearns, (in White) U. S. Geol. Surv. Bull. 18, p. 14, pl. 3, figs. 4-6, 1885. (In a later publication Stearns says the word *Monodon* was an error for *Mesodon*.)

Polygyra dalli Stearns, Proc. Wash. Acad. Sci. Vol. 2, pl. 35, figs. 4-6, 1900. (Same figures reproduced as in White, cited above. Stearns, Science, n. s. Vol. 15, p. 153, 1902. Mentioned as being in the University of California Collection.) Stearns, Univ. of Calif. Publ. Geol. Vol. 5, No. 3, p. 67, 1906. Hanna, op. cit. (Mentioned as being in the University of Kansas Collection.) Mentioned herein as being in the University of Oregon Collection.

Fossil Mollusks From the John Day Basin in Oregon

Polygyra expansa Hanna. Op. cit.

Polygyra martini Hanna. Op. cit.

Polygyrella polygyrella (Bland and Cooper.) Mentioned herein as being in the University of Oregon Collection.

Pyramidula mascallensis Hanna. Op. cit. Mentioned herein as being in the University of Oregon Collection.

Pyramidula simillima Stearns.

Helix (Patula) perspectiva Say. Stearns. (in White.) U. S. Geol. Surv. Bull. 18, p. 14, pl. III, fig. 7, 1885.

Pyramidula perspectiva simillima Stearns, Proc. Wash. Acad. Sci. Vol. 2, p. 657, pl. 35, fig. 7, 1900. (Figure reproduced from U. S. Geol. Surv. Bull. 18 cited above. No description added.) Stearns, Science, n. s. Vol. 15, p. 153, 1902. (No description.) Stearns, Univ. of Calif. Publ. Geol. Vol. 5, p. 67, 1906. (This is a nude name and cannot hold in nomenclature.)

Rhioistoma americana n. sp. Described herein.

Unio condoni White, U. S. Geol. Surv. Bull. 18, p. 13, pl. 2, figs. 1-3, 1885.

Migranaja condoni (White.) Hannibal, Proc. Mal. Soc. Lon. Vol. 10, p. 124 and 197, 1912.

Transmitted May 27, 1920.

Issued August 26, 1920.

EXPLANATION OF PLATE I

Figures 1a, and 1b. *Gastrodonta imperforata* Hanna. Enlarged approximately $1\frac{3}{4}$ times.

Figures 3a, 3b, and 3c. *Helicina oregona*, n. sp. All enlarged approximately six times.

Figures 4a, and 4b. *Rhoistoma americana*, n. sp. Both enlarged approximately six times.

1a

1b

3a

3b

3c

4a

4b

PLATE I.

DATE DUE

GAYLORD

PRINTED IN U S A

UC SOUTHERN REGIONAL LIBRARY FACILITY

A 000 826 489 7