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OF THE

LAND & FRESHWATER SHELLS

OF

UTAH.



OAKLAND CAL

T1878

M. D. ...

H. H.

NOTE

I invite the especial attention of Naturalists, Conchologists, &c, to this remarkable series of Land Shells, collected by me during last summer and fall in the canyons of the Wassatch Mt's, Utah.

This collection is certainly one of deep scientific interest and furnishes one of the best examples of evolution that we have ever met with, for it closely unites what has been considered heretofore, as five good and distinct specie .

For the purpose of showing their close relationship I have arranged them in suites to show their full range of variation, in form, size, sculpture and color.

I offer the following testimonials from our highest conchological authorities as evidence of their scientific value.

Without exception your Utah suite is the most interesting I ever studied, and the most instructive.

W. G. Binney.

Your suite of Utah Helices is deeply interesting. The forms we know as strigosa, Cooperi, Idahoensis, Hemphilli and Haydeni, are shown by numerous varieties to be intimately connected.

Tho's. Bland.

I have examined with care the magnificent suite of land shells collected by you in Utah, and do not hesitate in pronouncing them the most interesting and instructive of any groupe of Helices that I have ever been priviliged to study.

W. Newcomb. M. D.

H. H.

LAND SHELLS OF UTAH.

- | | | | | |
|----|---|--------------|-----------------------|----------------------|
| 1 | Zonites | arboreus, | Say. | |
| 2 | , | chersina, | , | |
| 3 | , | Whitneyi, | Newc. | |
| 4 | Vitrina | Pfeifferi, | Newc. | |
| 5 | Patula | Cronkheitei, | Newc | |
| 6 | , | strigosa, | Gld. | |
| 7 | , | , | var. | |
| 8 | , | , | medium. | |
| 9 | , | , | small. | |
| 10 | , | , | bandless, horn-color, | large. |
| 11 | , | , | , | medium. |
| 12 | , | , | , | very small. |
| 13 | , | , | albino, | large. |
| 14 | , | , | , | medium. |
| 15 | , | , | , | very small. |
| | Intermediate forms connecting strigosa & Cooperi. | | | |
| 16 | , | , | large, banded. | |
| 17 | , | , | medium. | |
| 18 | , | , | diaphanous, banded, | horn-color. |
| 19 | , | , | var | |
| 20 | , | , | small, variable. | |
| 21 | , | , | , | albino, rough striæ. |
| 22 | Patula | Cooperi, | Binn- Elevated. | |
| 23 | , | , | medium. | |
| 24 | , | , | horn-color. | |
| 25 | , | , | var. | |
| 26 | , | , | small. | |
| 27 | , | , | albino, rough striæ. | |
| 28 | , | , | very small. | |

Intermediate forms connecting *strigosa* & *Cooperi* with *Hemphilli*.

- | | | |
|----|---------------------------------|---|
| 29 | | subangled. |
| 30 | | dentate. |
| 31 | <i>Patula Hemphilli</i> , Newc. | var |
| 32 | , , | banded. |
| 33 | , , | small. |
| | , , | passing into <i>Haydeni</i> . |
| 34 | , , | var <i>Utahensis</i> , keeled, smooth. |
| 35 | , , | , , small. |
| 36 | , , | var <i>Oquirrhensis</i> , revolving ribs. |
| 37 | , , | , , depressed. |
| 38 | , , | , , small. |
| 39 | , <i>Haydeni</i> , Gabb. | |
| 40 | , , | small. |
| 41 | , , | var <i>Gabbiana</i> . Ribs nearly obsolete. |
| 42 | , , | small. |

The following varieties of *Idahoensis* have more than double the number of ribs or plicate striæ than the typical form, and are the most beautiful of our American snails.

- | | | |
|----|--------------------------------|------------------------|
| 43 | <i>Patula Idahoensis</i> , var | <i>Wassatchensis</i> . |
| 44 | , , | , , var. |
| 45 | , , | , with chestnut bands. |
| 46 | , , | , bandless. |
| 47 | , , | , depressed, |
| 48 | , , | , - small. |
| 49 | , , | , - bandless. |
| 50 | , , | , - small. |
| 51 | , , | , , medium banded. |
| 52 | , , | , - bandless. |
| 53 | , , | , intermediate. |
| 54 | , , | , , small. |
| 55 | , , | , elevated. |
| 56 | , , | , dentate. |
| 57 | , , | , very small banded. |
| 58 | , , | , , , bandless. |

- 59 *Patula Idahoentis*, var very elevated, small
 60 , , , horn-color.
 61 , , , elevated.
 62 , , , pupiform
 63 , , , , var
 64 , , , dentate.

In the remaining varieties of *Idahoensis* the body of the shell is clouded with dark and light chestnut, with a single, broad, revolving white band.

- 65 *Patula Idahoensis*, var. depressed, variable.
 66 , , , medium.
 67 , , , elevated.
 68 , , , var.
 69 , , , dentate.
 70 *Helix Ingersolli*, Bld.
 71 , *costata*, Say.
 72 *Cionella subcylindrica*, Linn.
 73 *Pupa hordeacea*, Gabb.
 74 , *corpulenta*, Morse.
 75 , *Arizonensis*, Gabb.
 76 *Succinea Haydeni*, Binn.
 77 , *Nuttalli*, ? Lea.
 78 , *Gabbi*, ? Tryon.
 79 , *Stretchiana*, ? Bld.
 80 , *Oregonensis*, Lea.
 81 , *lineata*, ? var.

Over

FRESHWATER SHELLS OF UTAH.

- 82 *Sphærium occidentale*, Prime.
 - 83 , *dentatum*, Hald.
 - 84 *Pisidium occidentale*, Newc.
 - 85 , *compressum*, Prime.
 - 86 , *ultramontanum*, Prime.
 - 87 *Anodonta Oregonensis*, Lea.
 - 88 *Limnæa stagnalis*, Linn.
 - 89 *Limnophysa Nuttalliana*, Lea.
 - 90 , *Haydeni*,
 - 91 , *caperata*, Say.
 - 92 , *proxima*, Lea.
 - 93 , *elodes*, Say.
 - 94 , *palustris*, Muli.
 - 95 , *desiduosa*, Say.
 - 96 *Physa Sayi*, Tappan.
 - 97 , *heterostrophe*, Say.
 - 98 *Bulinus hypnorum*, Linn.
 - 99 *Planorbis trivolvis*, Say.
 - 100 , *lentus*,
 - 101 *Gyraulus vermicularis*, Gld.
 - 102 *Valvata sincera*, Say.
 - 103 *Bythinella Binneyi*, ? Tryon.
 - 104 *Amnicola longinqua*, Gld
 - 105 *Fluminicola fusca*, Hald.
 - 106 *Pomatiopsis intermedia*, Tryon.
- 107 *Leptolimæa Kirtlandiana*, Lea.

PRICE LIST.

LAND SHELLS.

80 species and vars, two of each	\$18 00
, , , three	26 00

FRESHWATER SHELLS.

25 species three of each	\$4 00
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