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II
CONTRIBUTION TO THE TERTIARY PALEON-
TOLOGY OF PERU

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INTRODUCTION

In 1914 Mr. G. C. Gester collected a considerable number of Tertiary fossils in Peru and soon after presented them to the California Academy of Sciences. Dr. Roy E. Dickerson, then Curator of the Department of Paleontology, intended to prepare a report upon the collection for publication, and he identified many of the species contained therein, but before the work was completed he was called to other duties.

Later, through the kindness of Mr. John G. Burt of the Shell Oil Company of California, another collection made in the same region by Mr. Arthur May was donated to the Academy.

The purpose of this paper is to place on record these interesting and valuable collections. Through the development of the petroleum bearing formations of northern South America during recent years much attention has been attracted to the region and several extensive reports have been published on the geology and paleontology. Large collections have been made

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- Solarium nelsoni* WOODS, in BOSWORTH, Geology of Northwestern Peru, 1922, p. 76, pl. 6, figs. 6-8. Negritos Formation, Eocene.
- Solarium sexlineare* NELSON, Trans. Conn. Acad. Arts and Sciences, Vol. 2, pt. 1, 1870, p. 194, pl. 6, fig. 11. Zorritos, Peru.—GRZYBOWSKI, Neues Jahrbuch für Min. Geol. Pal. Bl. Bd. 12, 1899, p. 642 (name spelled "sexlineatum" p. 655.), pl. 20, fig. 13. Zorritos Formation, Miocene.—WOODS, in BOSWORTH, Geology of Northwestern Peru, 1922, p. 109, pl. 18, fig. 1. Zorritos Formation, Miocene.
- Solenosteira alternata* (NELSON) SPIEKER, Paleontology of the Zorritos Formation, Johns Hopkins Univ. Studies in Geology, No. 3, 1922, p. 45, pl. 1, figs. 10, 11. Lower Zorritos Formation, Miocene.
- Cuma alternata* NELSON, Trans. Conn. Acad. Arts and Sciences, Vol. 2, pt. 1, 1870, p. 198, pl. 7, figs. 3, 4. Zorritos, Peru.
- Strepsidura pacifica* WOODS, in BOSWORTH, Geology of Northwestern Peru, 1922, p. 96, pl. 13, figs. 2-4. Negritos and Lower Lobitos Formations, Eocene.
- Strombina lanceolata* (SOWERBY), NELSON, Trans. Conn. Acad. Arts and Sciences, Vol. 2, pt. 1, 1870, p. 198. Zorritos, Peru.
- Strombus furcatus* GRZYBOWSKI, Neues Jahrbuch für Min. Geol. Pal. Bl. Bd. 12, 1899, pl. 20, figs. 14, 14a. Talara Formation, Miocene.
- Strombus*, sp. ind. NELSON, Trans. Conn. Acad. Arts and Sciences, Vol. 2, pt. 1, 1870, p. 192. Zorritos, Peru.
- Struthiolaria guttifera* GRZYBOWSKI, Neues Jahrb. für Min. Geol. Pal. Bl. Bd. 12, 1899, p. 647, pl. 19, fig. 8. Zorritos Formation, Miocene.
- "*Surcula*" *mayi* HANNA & ISRAELSKY, new species, this paper, p. 45, pl. 7, fig. 12. Eocene.
- Surcula occidentalis* WOODS, in BOSWORTH, Geology of Northwestern Peru, 1922, p. 106, pl. 16, figs. 7-10. Negritos Formation, Eocene.
- Surcula thompsoni* WOODS, in BOSWORTH, Geology of Northwestern Peru, 1922, p. 107, pl. 17, figs. 1, 2. Negritos Formation, Eocene.
- Sycum americanum* WOODS, in BOSWORTH, Geology of Northwestern Peru, 1922, p. 101, pl. 14, fig. 4. Negritos Formation, Eocene.
- Telescopium peruvianum* WOODS, in BOSWORTH, Geology of Northwestern Peru, 1922, p. 91, pl. 11, figs. 13, 14. Lobitos Formation, Eocene.
- × *Terebra gausapata* var. *herviderana* SPIEKER, Paleontology of the Zorritos Formation, Johns Hopkins Univ. Studies in Geology, No. 3, 1922, p. 35, pl. 1, fig. 1. Lower Zorritos Formation, Miocene.
- × *Terebra nelsoni* HANNA & ISRAELSKY, new name.
- *Myurella tuberosa* NELSON, Trans. Conn. Acad. Arts and Sciences, Vol. 2, pt. 1, 1870, p. 193, not fig'd.
- *Terebra tuberosa* (NELSON), SPIEKER, Paleontology of the Zorritos Formation, Johns Hopkins Univ. Studies in Geology, No. 3, 1922, p. 36, pl. 1, fig. 2. Zorritos Formation, Miocene.
- Not *Terebra tuberosa* HINDS, Proc. Zool. Soc. London, 1843, p. 152.

- ✕ *Terebra tuberosa* (NELSON). See *Terebra nelsoni* HANNA & ISRAELSKY, new name.
- Tritonium pernodosum* GABB, Amer. Journ. Conch., Vol. 5, 1869, p. 26, Tertiary, Payta, Peru.—GABB, Journ. Acad. Nat. Sci. Phila., Ser. 2, Vol. 8, 1878, p. 264, pl. 35, fig. 2.
- Triumphis solida* (NELSON), SPIEKER, Paleontology of the Zorritos Formation, Johns Hopkins Univ. Studies Geology, No. 3, 1922, p. 49, pl. 2, fig. 3. Lower Zorritos Formation, Miocene. [Loc. 328, C.A.S. coll.]
- Clavella solida* NELSON, Trans. Conn. Acad. Arts and Sciences, Vol. 2, pt. 1, 1870, p. 199, not figured. Zorritos, Peru.
- Pyrula roseta* GRZYBOWSKI, Neues Jahrb. Min. Geol. Pal. Bl. Bd. 12, 1899, p. 648, pl. 19, fig. 6. Zorritos Formation.
- Turbo belli* SPIEKER, Paleontology of the Zorritos Formation, Johns Hopkins Univ. Studies in Geology, No. 3, 1922, p. 91, pl. 4, fig. 11. Zorritos Formation, Miocene.
- Collopoma lineatum* NELSON, Trans. Conn. Acad. Arts and Sciences, Vol. 2, pt. 1, 1870, p. 187, pl. 6, fig. 2. Zorritos, Peru.
- Not *Turbo lineatus* DA COSTA, Brit. Conch. 1778, p. 100.
- Turbo belli* var. *aquifilicatum* SPIEKER, Paleontology of the Zorritos Formation, Johns Hopkins Univ. Studies in Geology, No. 3, 1922, p. 92, pl. 4, fig. 12. Lower Zorritos Formation, Miocene.
- Turritella* sp. cf. *altilira* CONRAD, WOODS, in BOSWORTH, Geology of Northwestern Peru, 1922, p. 110, pl. 19, figs. 2-4. Zorritos Formation, Miocene.
- Turritella altilira* CONRAD, SPIEKER, Paleontology of the Zorritos Formation, Johns Hopkins Univ. Studies in Geology, No. 3, 1922, p. 59, pl. 2, fig. 12. Lower Zorritos Formation, Miocene. [Loc. 858, C.A.S. coll.]
- Turritella altilirata* CONRAD, GRZYBOWSKI, Neues Jahrbuch, Min. Geol. Pal. Bl. Bd. 12, 1899, p. 645, pl. 20, fig. 7. (Spelled *altilirata* after GABB, Journ. Acad. Nat. Sci. Phila., 1877, p. 341, pl. 44, figs. 9, 9a.) Zorritos Formation, Miocene. [See *Turritella altilira* CONRAD.]
- Turritella alturana* SPIEKER, Paleontology of the Zorritos Formation, Johns Hopkins Univ. Studies in Geology, No. 3, 1922, p. 62, pl. 2, fig. 13 (reads 3 in text). Horizon unknown.
- Turritella plana* NELSON, Trans. Conn. Acad. Arts and Sciences, Vol. 2, pt. 1, 1870, p. 188, not fig'd. Zorritos, Peru.
- Not *Turritella plana*, MCCOY or BRINKHORST, 1861.
- Turritella anceps* WOODS, in BOSWORTH, Geology of Northwestern Peru, 1922, p. 81, pl. 8, figs. 12, 13; pl. 9, figs. 1, 2. Negritos Formation, Eocene. [Loc. 856, C.A.S. coll.]
- Turritella annectens* WOODS, in BOSWORTH, Geology of Northwest Peru, 1922, p. 81, pl. 9, figs. 3, 4. Negritos and Lobitos Formations, Eocene.