

the shell came from streams in Guiana. He uses this sentence: Cette coquille habite dans les rivières de la Guyanne, d'ou elle m'a ètè envoye par M. le Blond. The shells figured by Ortmann as *A. crispata* came from the Rio de la Paila, a tributary of the upper Rio Cauca of the Rio Magdalena drainage. This is a long distance from Guiana, there are high mountains between and the drainage of Guiana has no connection with the Magdalena system.

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#### INHERITANCE OF DIRECTION OF COIL IN ACHATINELLA

BY OLAF OSWALD

On a collecting trip to the Waiawa-Manana ridge, Oahu, on April 13, 1929, I found a total of 152 shells of *Achatinella swiftii*, of which 78 were sinistral and 74 dextral. One of these sinistral specimens contained a dextral embryo. This colony was about half-way down the southerly slope of the ridge. On the northerly slope, in a ravine about 150 yards directly opposite, I found 40 specimens, all dextral. A couple of hundred yards *makai* (seaward) from this second colony I collected 28 shells, all sinistral. The colonies on the southerly and northerly slopes were separated by a heavy growth of *uluhi* (*Gleichenia dichotoma*) fern, well known to collectors as an isolator of *Achatinella*.

On April 27th, at a point on the south slope of the southerly Waiawa ridge, almost directly opposite and about  $\frac{3}{8}$  mile northerly from the above localities, I found altogether 48 specimens, divided 41 dextral and 7 sinistral. Two of these sinistral animals had each a dextral embryo. In at least three instances, in this particular colony, I had the rare experience of gathering one dextral and one sinistral full grown specimen of one species from a single leaf. These also were *Achatinella swiftii*.

At Punaluu Valley, on the opposite (easterly) side of the island of Oahu, I found recently a colony of *Ach. bulimoides*



*obliqua*, in one dextral animal of which was a sinistral embryo. Incidentally, a few yards distant I collected one pure white shell of *Ach. decipiens kaliuawaensis* (dextral), the animal of which yielded four (4) dextral embryos. You will appreciate the rarity of this, knowing that an animal of the genus *Achatinella* bears ordinarily but one young, although occasionally two are found. The latter specimens have been given to the Bishop Museum.

Dr. Cooke informs me that he has noticed in several instances a different coil in the embryo from that of the mother.

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FOSSIL MOLLUSKS AND OTHER INVERTEBRATES FROM THE  
HUDSON RIVER TUNNEL, NEW YORK AND NEW JERSEY

BY HORACE G. RICHARDS

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About 1906 some bluish mud containing shells taken from the Pennsylvania Railroad tunnel under the Hudson River connecting New York City, N. Y. and Jersey City, N. J. was sent to Dr. Amos Brown, then professor of Geology at the University of Pennsylvania. Dr. Brown turned over the material to Dr. Burnett Smith who was then on the staff of the department. However before Dr. Smith could complete his studies on the shells he was called to Syracuse University, and consequently the material was turned over to the Geological Department of the University of Pennsylvania. Through the kindness of Dr. Smith, now associated with the New York State Museum at Albany, N. Y. and Dr. Frederick Ehrenfeld, head of the Department of Geology of the University of Pennsylvania, I have been permitted to examine this material.

Very few species are represented, and many of these only by fragments, but it is thought worth while to report these specimens even after the lapse of so many years.



Oswald, O. 1930. "Inheritance of direction of coil in Achatinella." *The Nautilus* 43, 130–131.

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