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SURFACE SCULPTURE IN ANCYLUS.

BY BRYANT WALKER.

Owing to the simple character of the shell, which presents but few of the salient specific features which enable the more specialized groups to be readily determined, the North American *Ancylus*, like the Succineas, have received but scant attention from our collectors, and great confusion exists in regard to the identification of nearly all the described species.

The species of the earlier authors were based almost wholly upon the shape, contour of the slopes and position of the apex. The surface sculpture was as a rule overlooked. With the exception of the few species characterized by radial ribs or incised lines, in only four of the eastern American forms is the character of the surface mentioned at all in the original descriptions, and then only with reference to the growth lines.

Bourguignat, in 1853 (*Journal de Conchyliologie*, IV, p. 63), was the first to point out the apical scar as a peculiarity of the genus, and Pilsbry (NAUTILUS, IX, p. 139) is the only American author who has noticed its presence in any American species. It is present in all of them, but is much less conspicuous in those species which group around *A. fuscus* than in those of which *A. rivularis* is the leading form.

Pilsbry also was the first (*loc. cit.*) to call attention to the fact "that nearly all specimens are more or less coated with foreign matter, sometimes calcareous, but generally ferruginous (which) must be removed before the color and finer sculpture can be observed," and to give a practical method for cleaning the shells.

A recent study of the eastern North American species has developed some unexpected peculiarities in regard to their surface sculpture, which are of value in determining many of the species and which may prove to be of importance in reference to their phylogeny and classification.

In studying the *Ancyli*, it is necessary to have the shells thoroughly cleaned with dilute oxalic acid and to use a compound microscope of at least 50 diameters; not unfrequently a power of 100 diameters is required, especially with the smaller species, to reveal the characteristic sculpture. Under a simple lens of 10 diameters the shell, when cleaned, appears to be smooth and shining, but under a higher power a more or less developed system of sculpturing is visible in nearly every species. This consists of two elements: first the concentric lines of growth, and second, a radial sculpture more or less evident, which in its fullest development, as in *A. peninsulae* and *eugraptus*, presents a series of fine, conspicuous, radial riblets extending from the apex to the peritreme.

The concentric sculpture formed by the growth lines is not usually very strongly developed. It never presents the regular clear-cut striation such, for instance, as is presented by *Planorbis trivolvus*, but is irregular and more or less indented, varying in the different species.

The radial sculpture in all the species examined, when present, consists of fine transverse elevations varying from very fine, irregular, discontinuous ripples to continuous riblets covering the entire surface. When present at all, their position is radial.

The only species in which any other kind of radial sculpture has been noticed is the *A. borealis* Morse, in which the surface is marked "with fine, regularly interrupted radiating lines." It is not expressly stated that these are incised, but such would seem to be the inference. Unfortunately no authentic specimens have been accessible for examination.

There is a large degree of individual variation in the development of the radial sculpture, even in those species which have been established upon its presence and in which it is best developed. *A. peninsulae* is the only one in which it seems to be uniformly present. *A. filiosus* is frequently nearly smooth and, judging from specimens from both the Coosa and the Cahawba, the radiating sculpture is decidedly irregular. The same holds true in regard to *A. eugraptus*. *A. ovalis* has not been examined.

On the other hand, in nearly all the so-called smooth species there is a distinct tendency toward the formation of a minute, transverse, irregular and discontinuous rippling of the surface, which, especially on the lateral slopes, tends to form irregular riblets extending anteriorly. The median portion of the anterior slope is less apt to be affected in this way.

While it is, as yet, too soon to speak positively, it seems possible that an examination of a large amount of material may lead to discarding the presence of a well-developed radial sculpture, unaccompanied by other peculiarities of size and shape, as a ground for specific distinction. The *A. excentricus* Morelet may be cited as an example of this kind. It is described as smooth or with very fine concentric lines only, and apparently on this ground alone is distinguished from the *A. radiatus* Guilding. Bourguignat (J. de C., iv, p. 155), on other grounds, only allows it varietal rank; but Crosse & Fischer (Moll. Mex., ii, p. 37) hesitate to follow him on account of the absence of the radiating striæ, which are so prominent in *radiatus*. An examination of specimens of *A. excentricus* from Texas, collected by Singley, shows that in all of them the radiating sculpture is incipiently present and that in some there are well-developed riblets present on the antero-lateral slopes, the median portion of the anterior slope being practically smooth. (See also Pilsbry, NAUT., iii, p. 64.) A larger series would probably necessitate the uniting of the two forms.

The most striking feature, however, in the radial sculpture of the *Ancyli* is the presence, in many of the species, of a circle of fine riblets or striæ on the apex, radiating from the apical scar. These apparently have not been noticed before. When present in a species, they are invariably to be found, and that quite independent of the presence or absence of a radial sculpture over the entire surface, and they may be entirely wanting in species with a well-developed ribbed surface, as in *A. eugraptus*. When the radial sculpture is persistent over the whole surface, the riblets originate from these apical striæ, but when that sculpture is not present, they cease a very short distance from the apex. This apical sculpture is characteristic of the more elevated species with an acute apex, of which *A. rivularis* is the leading form. The scar in these species is situated on the tip of a sharp, prominent apex and, with its circle of radiating ribs, is very conspicuous and easily observed.

In a large number of species, however, the apex is smooth and the radial riblets when present originate below the apex. These are the wide, ovate or subcircular species, usually more or less depressed, of which *A. fuscus* may be considered the type. In these the apex is blunt and smooth and the apical scar is not conspicuous. In *A. peninsulae*, however, the riblets in some specimens seem to extend clear up to the scar, but not into it. While in this respect this species seems an exception to the rule, that the depressed species have the apical region smooth, nevertheless its affinities are all with that group, and in spite of the apparently intermediate character of its apical sculpture, it seems better to class it with them. A similar tendency, though much more feeble, has been observed in one set of *A. diaphanus*.

The eastern American species, so far as examined, fall into two natural groups characterized by their shape and contour as well as this difference in apical sculpture. Pilsbry has already indicated them (loc. cit.) on other grounds, and it is interesting to find that the distinction apparently also holds good on structural grounds of some importance.

The following list of eastern American species is arranged with reference to their apical character:

Apex striate.	Apex smooth.	Not examined.
<i>rivularis</i> .	<i>fuscus</i> .	<i>obscurus</i> .
<i>tardus</i> .	<i>diaphanus</i> .	<i>elator</i> .
<i>parallelus</i> .	<i>excentricus</i> .	<i>calcarius</i> .
<i>shimekii</i> .	<i>holdemani</i> .	<i>borealis</i> .
<i>filosus</i> .	<i>eugraptus</i> .	<i>ovalis</i> .
	<i>peninsulae</i> .	

Any collector, who has any of the unexamined species as here listed, will confer a favor by communicating with the writer.

A NEW HAITIEN CHONDROPOMA.

BY JOHN B. HENDERSON, JR., AND CHAS. T. SIMPSON.

Chondropoma superbum.

Shell having a small umbilicus, usually truncated, subsolid, somewhat shining; whorls 7, the two nuclear ones smooth and waxy; those remaining in the truncated shell 4; sculpture consisting of



Walker, Bryant. 1902. "Surface sculpture in Ancyclus." *The Nautilus* 16, 85–88.

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