es River near Tyler, Texas. A compact
ally from Alabama. Specimens from
lso before me. Mr. Simpson called my
f these specimens with the Alabama

Vest Yegua Creek, Lee Co., Texas. A
tulosus group. It is somewhat allied to
ed species of which *U. Bollii* Call is a

Eddy in Neches River near Tyler,
his *Schoolcraftii*, but it is apparently as
osus group.
Creek, Henderson Co., and Neches River
looks on one side toward *apiculatus*
he direction of *lachrymosus* Lea and
oisodes will sometime be revealed in the
latidæ." The mingling of blood has

Neches River near Tyler, Texas. Some
arranged very distinctly in V-shaped
ay. In fact, *tuberculatus* belongs to
fferent contour. This shell is found
cluding Ohio and Missouri) drainages,
er. Some southern specimens have
I have never observed in Northern

rado River near Austin. This is very
ensis and *U. Tecomatensis* of Lea.
sidens Lam.
Eddy in Neches River near Tyler,
s and *coloradoensis*. Lea gives the

oo Creek, Henderson Co.; Neches
na, Texas. An apparently distinct
aries in color from black to yellow
males and females are notably dis-
olus, etc. Compare *U. approximus*

, Texas. Closely allied to *U. Texas-*
h more compressed.

U. Texasensis Lea. Wimberly Lake, Lee Co., Texas. Allied to *U. parvus*, *U. Bealei*, etc. Lea's *U. Bairdianus* is a synonym.

U. Sayi Tappan. Texarkana, Texas. Allied to *camptodon*, but easily separable from the types of that species. *U. subcroceus* Con. seems to be the same.

U. camptodon Say. Water works reservoir, Tyler, Texas. I do not propose to go into the tremendous and involved synonymy of this member of the *U. parvus* group. Typically the *camptodon* is distinguished by the form of the hinge-line, which is decidedly curved under the beaks. Forms very similar are found from the Ohio River to East Texas and to Florida.

U. declivis Say. Sabine River, Shelby Co., Texas. More angular posteriorly than *U. symmetricus*. *U. geometricus* of Lea is a synonym, as Lea himself ascertained.

U. symmetricus Lea. A species allied to *declivis* Say, but less angular. It has much the general appearance of the common eastern *U. complanatus*. The synonymy of *symmetricus* includes *U. porrectus* Conrad, *U. manubius* Gould, and (according to Mr. Simpson) *U. Jamesianus* Lea. Mr. Simpson kindly compared specimens with the types of *symmetricus*, confirming my identification. The localities are Blackfork Creek, near Tyler, Texarkana, and West Yegua Creek, Lee Co., Texas.

U. subrostratus Say var. *Rutersvillensis* Lea. Texarkana; Wimberly Lake, Lee Co., Texas. The extensive synonymy of this species has been worked out by Prof. R. E. Call, (Bull. Washb. Lab.)

U. anodontoides Lea. Blackfork Creek near Tyler; West Yegua Creek, Lee Co., Texas. Exhibits no variation from the common Mississippi and Ohio River types.

Anodonta Stewartiana Lea. Neches River near Tyler. Belongs to the *A. corpulenta* group. *A. virens* Lea is probably a synonym, and *H. Linnæana* Lea is closely allied.

ON THE DISTINGUISHING CHARACTERS OF UNIO RADIATUS AND UNIO LUTEOLUS.

BY GEO. W. DEAN, KENT, OHIO.

In the September NAUTILUS, Rev. W. M. Beauchamp has the following queries: "Can any one point out an invariable feature

distinguishing *Unio radiatus* and *luteolus?* The distinctions do very well for some, but to others they seem a good deal mixed. Has not every collector some which he has not named?"

After long familiarity with *luteolus* in many streams and reservoirs and having several suites of *radiatus* from different localities, and seeing it plentiful in the Susquehanna River at Muncy, Pa., the thought has not come to me that they were even closely related; nor do I think they are. Sometimes there is an *indescribable* something plainly discernible to the eye of an expert that separates species, but there is no such difficult or intangible distinction in this case and I think I can make the distinctions plain to Mr. Beauchamp.

I can emphatically say that I have nothing at all like either species that is not easily named.

As a first distinction I give the *form of the female of luteolus* which at maturity becomes very broad and inflated at the posterior end and truncated, while forward it remains narrow and very small, comparatively. This characteristic I have not seen in *radiatus* and do not think it exists. The difference between the male and female is so great in *luteolus* that Anthony thought them distinct and gave to the male the name of *U. distans.*

Another and very marked difference is in the epidermis. In *luteolus* it is, in its perfect state, polished and hard as glass, giving to the radiating stripes a distinctness rarely seen in the genus. While the lines of growth in *radiatus* are very much larger, giving the surface to the naked eye more the appearance of velvet or fine plush also giving to the radiating stripes a corresponding dimness. Of course these distinctions in the epidermis come out only in cleaned shells or young specimens naturally clean; they would not be noticed in mature shells as taken from the water. But even in this state I should readily distinguish either species as it came to the light. If there is such a thing as an intermediate specimen, I should like to see it and would agree to put it in the right place at sight.

As a third distinction, the range of color in the nacre of *radiatus* is very great, whilst in *luteolus*, as far as I have seen, it is uniformly light-blue. I have heard of *luteolus* with pink nacre but have never seen one. I do not know either whether these two species are ever found together.