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Variation in the Succinidae of the Loess

B. Shimek

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S. fabulis, as reported, is an extreme form of *S. solidulum*. It should be dropped from the list.

S. partumeium, *S. jayanum*, and *S. sphaericum*, as identified by Prof. Witter, also from one series, and are the same species, *S. sphaericum* being intermediate. Our specimens are not typical *S. partumeium*, but resemble typical *S. jayanum* more nearly. If *S. partumeium* should prove to be a valid species, which is doubtful, then all of our specimens (including *S. sphaericum* as identified by Prof. Witter) must be referred to *S. jayanum*, Prime.

This leaves seven species of *Sphaericum* in the State: *S. sulcatum*, Lam., *S. striatinum*, Lam., *S. rhomboideum*, Say, *S. jayanum*, Prime, *S. transversum*, Say, *S. secure*, Prime, and *S. truncatum*, Lius.

Mr. Charles R. Keyes, in the list already referred to, also reports the following additional species:

Tridopsis palliata, Say.

Ancylus tardus, Say.

Ammicola orbiculata, Lea.

VARIATION IN THE SUCCINIDÆ OF THE LOESS.

BY B. SHIMEK.

The recent species of the genus *Succinea* are certainly puzzling, but those which are found as fossils in the loess deposits of the Missouri and Mississippi valleys are positively bewildering. The fossil forms belong principally to the *avara* and *obliqua* groups, but few specimens belonging to the *ovalis* group occurring. Without entering into a detailed discussion of the various forms it may be briefly stated that an examination of the specimens, both recent and fossil, which are herewith submitted, will show the following facts:

The three forms which are commonly found in the loess are *S. obliqua*, Say, *S. avara*, Say *S. lineata*, Binn. A careful weighing of the variation in the recent specimens of these species, supplemented by the almost unbroken series of fossil forms, shows that typical *S. avara* varied through the larger form of the same species to *S. obliqua* in one direction, with a smaller branch running into *S. lineata* in another. In other words, I am convinced that however different these species may appear now, they were once the same, the original stock occurring perhaps just before the loess.

The variation in these forms, or in the original form, was not the result of climatic conditions, for all forms often occur in the same deposit.

It is expected that a more complete report on this variation, with proper plates, will be elaborated in the near future.

It may be of interest to note that our small typical fossil, *S. avara*, is identical with *S. oblonga*, Drap., from the loess of Germany.