

found a part of a lemma from which the summit had been cut and mistook it for a palea, while the true palea split to the base in dissection was mistaken for lodicules.

We have not seen Lechler's no. 599, referred to by Bentham as possibly the staminate form of *Aciachne*. Growing with *Aciachne* at Cerro de Pasco, Peru, Professor Hitchcock found over-mature plants of *Dissanthelium calycinum* (Presl) Hitchc., which agree fairly well with Bentham's observations on Lechler's no. 599 and would appear to be the same species, though the glumes are abruptly pointed, not obtuse as in *Aciachne*.

Baillon in a note⁴ on the 1-flowered inflorescence of *Aciachne* refers to it as "polygame-dioique." His description of palea and lodicules ("glumelle interieure" and "glumellules") seems to be drawn from Bentham's illustration, but he found three stamens and an ovary with plumose styles, evidently in a young spikelet. He also observes a caryopsis but does not mention the included stamens. Pilger mentions⁵ *Aciachne* in a paper on monoecious and dioecious grasses.

ZOOLOGY.—*Snails of the genus Succinea from the Maritime Province of Sibera.* T. D. A. COCKERELL, University of Colorado. (Communicated by PAUL BARTSCH).

Dr. Leopold v. Schrenck, in his account of the mollusca of the Amur region of Siberia,¹ listed ostensibly one species of *Succinea*, namely *S. putris* Linnaeus. However, he divided this into forma *ventricosior* (*S. amphibia* Draparnaud) and forma *gracilior* (*S. pfeifferi* Rossmuessler), and if his identifications were correct, he had not only two species but two subgenera. Westerlund described two varieties of *S. putris* from Siberia, namely variety *firma* Westerlund, above whitish, beneath amber-color, whorls 4, length 16-17 mm., width 9-10 mm. (Ins. Briakowskij, n. lat. 70°, 39'), and variety *hazayana* Westerlund, red yellow, whorls 4-4.5, length 19.5-22 mm., width 9-10 mm. (Tunguska N. lat. 61°). *Succinea oblonga* var. *agonostoma* Kuester is said by Westerlund to occur in Germany, Sweden, and Siberia. The variety *elongata* Westerlund is synonymous with it. *Succinea chrysis* Westerlund is found, accord-

⁴ Bull. Soc. Linn. Paris 2: 1034. 1892

⁵ Bot. Jahrb. Engler 34: 386. 1904.

¹ *Reisen und Forschungen im Amurlande in den Jahren 1854-1856.* St. Petersburg, 1859-1867.

ing to Dall,² from Greenland to Bering Strait and on the opposite (Asiatic) shore of the Strait.

The division of *Succinea* into subgenera has led to differences of opinion, and has perhaps been overdone, as Dall has suggested. Nevertheless, there are certainly two groups among the commoner Palearctic and Neartic species, namely *Succinea* Draparnaud, proper (type *S. putris*), and *Amphibina* Hartmann (type *S. pfeifferi*). Not only do these differ in the appearance of the shell, but *Succinea* proper has the jaw ribbed, which is not the case in *Amphibina*. The two types of jaw are well illustrated by W. G. Binney³ (*S. totteniana* Morse and *S. avara* Say) and by Moquin-Tandon.⁴ *Lucena* Oken, originally based on *S. putris*, is *Succinea* proper as here understood. *Oxyloma* Westerlund, containing *S. dunkeri* Zeebor from Dobrudscha and *S. hungarica* Hazay from Hungary, is probably not to be separated from *Amphibina*. Both these species are so close to *S. elegans* Risso, which belongs to *Amphibina*, that good authorities have regarded them as subspecies of it.

In the Maritime Province of Siberia, during the summer of 1923, I found two kinds of *Succinea*, both of the typical subgenus, and closely related to *S. putris*. When I collected them, as they climbed the damp herbage during wet weather, they struck me as being decidedly different from *S. putris*, a species very familiar to me in England. Even in England, however, *S. putris* is variable, and from various parts of Europe numerous varieties have been described by Moquin-Tandon, Hazay, Baudon, Clessin, Colbeau, Bourguignat, Picard, Paulucci, Westerlund, and Pascal. Since there is so much similarity in the shells of related forms of *Succinea*, it is quite possible that anatomical studies will show several of these "varieties" to be distinct species, but others are certainly phases without even racial significance. Germain⁵ does not hesitate to treat *S. charpentieri* Dumont and Mortillet and *S. milneedwardsi* Bourguignat, regarded as mere varieties of *S. putris* by Westerlund, as perfectly distinct species. Owing to the uncertainty surrounding the whole subject, I present the Siberian forms as subspecies of *S. putris*, a course which at any rate calls attention to their obvious affinities. Should they hereafter be separated specifically, they will probably rank as forms of a single species, yet racially distinct, as the characters were quite uniform (except for the usual individual variation in shape) in each locality.

² Alaska (Harriman Expedition) 13: 59. 1905.

³ *The terrestrial air-breathing mollusks of the United States* 5: 415. 1878.

⁴ *Hist. Nat. Mollusq. Ter. & Fluv. France* 3: pl. 7. 1855.

⁵ *Mollusques de la France* 2: 225. 1913.

***Succinea putris olgae*, new subspecies.**

Shell 19 to 21.6 mm. long, 11 to 11.7 mm. wide; aperture 14 to 16 mm. long, 9.5 mm. wide; general form of *S. putris*, size like variety *hazayana* Westerlund, but broader and much paler, dullish pale horn color, with moderate spire. Jaw about as wide as long (1.7 mm.), ferruginous, the accessory plate usually longer than broad, thus longer in proportion to its width than in *S. putris*; ends (lateral lobes) distinctly broader than in *S. putris*; ribs low and broad, three or five; median inferior projection well developed. Lingual membrane with the teeth (centrals and laterals) only about half as long as the basal plate, the mesocone broad and very obtuse, the ectocones poorly developed; marginals dagger-shaped, curved, with a single rudimentary ectocone.

Olga, Siberia, July 13, on hill above the village (type locality); also (immature specimens) near the Kudia River, July. This is doubtless the shell which A. Adams reported as *S. putris* from Olga Bay and Vladimir Bay. *Type*.—Cat. No. 360790 U. S. N. M.

***Succinea putris mera*, new subspecies.**

Shell 20 mm. long, 11.7 wide; aperture 16 mm. long, nearly 9 wide; general form of a very broad *S. putris*, but very thin, strongly reddish moderately shining. Jaw as in the last, except that the accessory plate is broader; lingual membrane as in the last. Animal in life very pale translucent yellowish; tentacles grey above, abruptly contracted near end.

Okeanskaja, Siberia, July and August, abundant close to the railway station. *Type*.—Cat. No. 360791 U. S. N. M.

The substantial identity in jaw and lingual membrane indicates that these forms, although locally constant in their color-differences, are conspecific. *Succinea lauta* Gould was identified by A. Adams in his collections from Vladimir Bay. *Succinea lauta* was described by Gould as found on shrubbery at Hakodate, which is in northern Japan nearly opposite Vladivostok. It was said to be a very large, thin shell, most like *S. obliqua* Say. Dr. Bartsch has kindly sent me a specimen, and it is certainly another member of the *S. putris* group, differing very little from typical *S. putris* as figured by Moquin-Tandon and Baudon. The longer spire and generally more fusiform shape distinguish it from the above-described Siberian shells, but whether it agrees with them in dental and jaw characters remains to be determined. The Japanese *S. horticola* Reinhardt, from Matsuyama, also sent by Dr. Bartsch, is an entirely different shell, apparently referable to *Amphibina*, although Pilsbry seems to think otherwise. The Japanese *S. hirasei* Pilsbry is an *Amphibina*. I do not believe any of these Japanese species occur in Siberia. The record of Adams may be safely set aside, as it has been shown in several other cases that he made serious errors in locality or identity.

Succinea ogasawarae Pilsbry and *S. punctulispira* Pilsbry, from the Bonin Islands, are much smaller than my Siberian shells; the former is a curious shell, with the spire reduced to a mere papilla. The Chinese *S. chinensis* Pfeiffer and *S. gimlettei* Jones and Preston are less than 10 mm. long, and appear to belong to *Amphibina*.

The American forms most nearly allied to *S. putris*, namely *S. ovalis* Say (*obliqua* Say) and *S. totteniana* Morse (now usually considered a race or variety of *ovalis*), differ conspicuously from my Siberian species in the jaw, which has no salient median inferior projection, and equally in the teeth, the pointed mesocones being much longer, while the marginals have two little cusps. There is thus no possibility of specific identity.

A remarkable thing about the genus *Succinea* is the presence of species on remote islands, such as the Hawaiian Islands (numerous species), Galapagos Islands Cocos Island, Clarion Island, Sokotra, etc. Darwin thought that the young might be carried on the feet of birds. Lyell thought that the eggs might be carried among the feathers of water-fowl.

ENTOMOLOGY.—*Notes on Grylloblatta with description of a new species.* A. N. CAUDELL, National Museum.

The examination of additional specimens of the *Grylloblatta* found in California, as recently announced¹ by the writer and of a topotypic nymph of the Canadian species *campodeiformis* Walker, makes it advisable to describe the specimens from California as belonging to a distinct species. Dr. E. M. Walker has kindly examined the holotype of the Californian form and pronounces it unquestionably distinct from the Canadian species. It is therefore here described as:

***Grylloblatta barberi*, new species.**

The type of this species is the large male nymph discussed in the aforementioned article. In general appearance it is very like the Canadian *campodeiformis* but structurally it differs from that species as follows: The antennae are composed of a greater number of segments, their number ranging from 35 to 40 while the maximum number noted in the related species is 29 in the adult, a nymph of that form before the writer having 25. The antennae are also decidedly longer than in the Canadian form, as shown by measurements given below. The posterior femora are, as noted in the previous article, longer than in *campodeiformis*, the appended comparative measurements being illustrative. The transverse sulcus near the anterior margin of the pronotal disk is sinuate in all specimens seen while in *campodeiformis* it is straight as shown by Walker's description and illustrated in the immature specimen of that species examined. Thus the characters mentioned as differential in the former article appear to be constant and specific except for the fact that the posterior margin of the pronotal disk is obtuse-angulate in the nymphs of both species, thus being a nymphal character. The cerci are more tapering and considerably longer than in *campodeiformis* and the large nymph selected as holotype, which is very probably in the last

¹ Can. Ent. 55: 148-150. 1923.