and then examined in the dark. They remained bright at least half a minute, when kept at a low temperature after excitation.

Calcium tungstate was found to give phosphorescence decidedly green in color, after being exposed to an arc light, while at the temperature of liquid air, and then examined in the dark. When this substance is subjected to the influence of Röntgen rays the fluorescence produced appears white.

Experiments on the present subject will be continued when more liquefied air is procured.

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SCIENTIFIC BOOKS.

Synopsis of the Recent and Tertiary Leptonacea of North America and the West Indies. [Proceedings U. S. National Museum, Vol. XXI., Pages 873–897 (with Plates LXXXVII., LXXXVIII.) 1899.] By WILLIAM H. DALL.

The Mollusca of Funafuti. Part I., *Gastropoda.* [Memoirs of Australian Museum III., Part 7, March 6, 1899.] By CHARLES HEDLEY.

In the first of these two very interesting and valuable additions to the literature of Malacology, Dr. Dall gives descriptions and figures of eighteen (18) new species and conveniently arranges all the known forms in the three lists —East Coast, West Coast, and Tertiary—showing that of the thirty-five east coast species enumerated, there are but two (*Kellia suborbicularis* and *Turtonia minuta*) which are found also on the west coast, the *Lasæa rubra* from Bermuda proving to be a distinct species. But four (*Kellia suborbicularis*, *Mysella planulata*, *Turtonia minuta* and *Aligena elevata*) are also found among the fossils. Many interesting changes are made in the synonymy, especially in the species from northeastern waters, some alteration in the name being made in every instance. They require the careful consideration of students interested in these small forms.

The combining of the recent genus *Kelliopsis* Verrill and Bush (1898) with the fossil genus *Aligena* H. C. Lea (1846) is unquestionably correct, but it is not made clear why *Abra æquata* Conrad (1843) (p. 877) is given as the type, and the two species (*A. striata* and *A. lævis*) described and figured by Lea fail to be mentioned even in the list of Tertiary species.

It is very doubtful if the combining of the genus *Mysella* Angas (1877) with *Montacuta* Verrill and Bush (1898) (the universally accepted interpretation of this genus), and the new interpretation of *Montacuta* Turton (1822), should remain unquestioned (p. 881).

In *Mysella* the hinge, the most important character, is described by Angas as consisting, in one valve, of a small, diverging, triangular cartilage-pit, close to which is a single, small, diverging, subcircular, flattened cardinal tooth; and, in the opposite valve, of two, thin, short, horizontal, lateral processes (P. Z. S. London, p. 176, 1877). The figures given of the only species (*M. anomala*) are entirely too small for accurate study and apparently resemble those of *M. substriata* as much as those of *M. bidentata*. It would seem improbable, however, that Angas could have failed to recognize the relationship of the Australian form to either or both of these well-known species. Probably with a more critical study of the specimen itself and with more material new points would be brought out, especially as it was placed by Angas between *Ervilia* and *Cytherea*, well separated from *Kellia*. In the species which Dr. Dall refers to *Montacuta* Turton, he describes and figures the hinge as having a prominent cardinal in each valve; the lamellæ obsolete; sockets for the resilium thickened and raised above the inner surface of the valve (*M. floridanum*, p. 893). The other species are similar to this, but he places the *Tellimya ferruginosa* Verrill (*non* Montagu) = *percompressa* Dall (p. 894) with them.

In an interior view of *percompressa*, the valves united, the dark brown resilium is somewhat triangular in form and lies underneath the beaks, fastened by its thin, inner edge to the sunken sockets which lie underneath the thickened posterior hinge-margin; its outer or upper edge is thick and broad, and bears an inconspicuous, thin, white ossicle. In one valve the anterior hinge-margin is thicker than in the

other and bears on its inner end a prominent, slender, somewhat curved tooth, having a blunt, concave end; in the opposite valve the hinge-margin is narrower, and the tooth, of similar form, is but little raised; a portion of the small, black or darker brown, external ligament, which separates the beaks and extends a little way on each side, passes between the valves and lies between these teeth, firmly attached to their concave ends. The dorsal margin is further attached, by the extension of the thin epidermis, for a considerable distance both before and behind the beaks.

The *Tellimya* Brown (1827) in its extended sense is synonymous with *Montacuta* Turton (1822). Brown divided his genus into three sections; the first included *suborbicularis* Montagu (the type of *Kellia* Turton (1822)); the second included *elliptica* Brown and *glabra* Brown, both = *ferruginosa* (Montagu), (recognized as the type of *Tellimya*, taken in a restricted sense), *bidentata* (Mont.) and *substriata* (Mont.) (type of *Montacuta* given by Woodward, 1851). Of the third section no examples were given. The hinge of this last species is carefully described by Jeffreys (Br. C., II., p. 206, 1863) as follows: "Cartilage yellowish-brown and semicylindrical, clasping the hinge-line on the posterior side of the beaks; hinge-plate short and narrow but strong, not deeply excavated in the middle; teeth triangular and pointed, that on the anterior side in each valve being larger than the other; the teeth in one valve lock into sockets in the other, but not in the corresponding valve of every specimen, it apparently being indifferent whether the right or left valve contains the more prominent teeth or sockets."

H. and A. Adams (1858) separated the two genera, placing *substriata* as the only example of *Montacuta* and both *bidentata* and *ferruginosa* as examples of *Tellimya*, but the definitions give no distinguishing characters. Sars in 1878 used *Tellimya* for *ferruginosa* (Mont.) and described and figured two new species, *nivea* and *ovalis*, and placed *bidentata* Mont., and *substriata* Mont., etc., under *Montacuta*. Professor Verrill also used *Tellimya* for the American form (*percompressa* Dall), thought to be a variation of the English *ferruginosa*, and gave in Trans. Conn. Acad., Vol. VI., p. 225, 1884, description and figures of the animal. The animal of the true *ferruginosa* was first described by J. Alder (Ann. Mag. Nat. Hist., p. 210, 1850). That Dr. Dall's interpretation of *Montacuta* appears synonymous with this is the probable reason for its not being used in his article. But that *substriata* and *ferruginosa* will prove generically related needs careful consideration, especially as no external ligament has been mentioned as found in *substriata*, and only separate valves have been found of each of Dr. Dall's new species.

Jeffreys (Proc. Zoöl. Soc., London, p. 696, 1881) proposed for the species described and figured by G. O. Sars as *Tellimya ovalis* the new name *Decipula ovata*; the new generic name, because *Tellimya* is a synonym of *Montacuta*; the specific, because he disapproved of the meaning of *ovalis*. As Sars' excellent figures show nothing that would generically separate *ovalis* from *ferruginosa*, *Decipula* becomes synonymous with *Tellimya*, but if the latter is discarded the former would have to be retained for this group. Jeffreys also made Sars' second species, *nivea*, a variety of *ferruginosa*. [See also Monterosato, Bull. Soc. Mal. Italian, Vol. VI., pp. 57–8, 1880.]

Montacuta planulata Stimpson (1851) was used by Professor Verrill in his Vineyard Sound Report (1874), but the great variations in size and relative thinness of texture in the American shells and their marked resemblances to a small series of English specimens led to the conclusion that in a larger series the same variations might be found and the English name *bidentata* was adopted. Dr. Dall finds that such variations do not exist, and again restores Stimpson's name (p. 890). This is not the *Lasæa planulata* Verrill (1879, Check-list) which is a large species of the same genus, measuring 8.5 mm. in length and about 7.5 mm. in height. It was dredged by the U. S. F. C. in Halifax harbor, in eighteen fathoms, 1877. It is thin, of delicate texture, covered with a conspicuous dirty-brown epidermis; the hinge-teeth are unequal in length and strongly resemble the figure given by Dr. Dall, of *Mysella Mölleri* (Hölbol) Mörch, so that there is no doubt that it is the same species.

It should be further noticed that in nearly every instance where the name of an Eastern Atlantic species has been adopted for species of our Western Atlantic fauna, even in those from deep water, Dr. Dall has either changed it or given additional varietal names, sometimes only for the very insufficient reason of differences in size, as in the instance of *Kellia suborbicularis* (Mont.) (p. 889), where only two specimens have been recorded from the coast: Thompson's *Gouldii* from New Bedford harbor and one from Massachusetts Bay, off Salem, U. S. F. C. (Verrill and Bush, 1898).

Such great dissimilarities exist in the hinges of the five figured species referred to the genus *Erycina* as to render it improbable that they can be retained in so close generic relation.

All these doubtful points will doubtless be satisfactorily adjusted by Dr. Dall in his more extended discussion of the subject, which is to appear in the Trans. Wag. Inst., Philadelphia, Vol. III., Pt. 5.

The *Lasæa rubra* Montagu quoted from Bermuda (p. 876) was found there abundantly by Professor Verrill and party, 1898. Compared with specimens from Guernsey it is found to have a much more swollen form with very large, swollen umbos, and attains twice the size of any of our numerous English examples. In one valve, anterior to the beak, there is a short, deep, socket, not sunken below the surface of the hinge-margin, but formed by two thin, triangular, raised teeth, nearly parallel—the outer one next to, and parallel with, the dorsal margin, and the inner one, much longer, diverging from the beak and curving outward from the inner edge of the moderately wide margin, the highest point of each being near the distal end. In front of this is a small, little prominent tooth on the inner edge of the hinge-margin, directly under, but separated from, the beak. There is also a similar socket, a considerable distance behind the beak, but it is longer and the two teeth are less triangular and but little raised, the upper or outer one scarcely discernible; within, and somewhat in front of this, separated and diverging from it, and running backward from the beak, is the sunken socket, to which a long, conspicuous, white resilium is attached. In other words, the hinge-margin broadens out distally, forming a triangular-shaped ledge at the side of this inner tooth, which has a concave side in which the resilium lies. In the English *rubra* the resilium is amber color and the teeth are not so strongly developed as in Bermuda specimens of the same size. In the opposite valve of the former there are three prominent teeth, the lateral ones well separated from the dorsal margin, which fit into these sockets and a corresponding resilium-pit. This distinct species may take the name *Lasæa Bermudensis*, sp. nov.

In the second article Mr. Hedley gives in his preface an interesting account of the atoll of Funafuti and the positions and conditions under which the various forms of mollusks are found, calling attention to the peculiarity in their lack of development, they being of smaller size than the representatives of the species from other localities. He also calls attention to the great difficulties encountered in preparing his article, owing to the great paucity of descriptive material.

Of the two-hundred and ninety-seven species, besides varieties, enumerated, about thirty-seven are described as new. Three new genera are also introduced (*Obtortio*, p. 412, type *Rissoa pyrrhacme* Melvill and Standen; *Cotumax*, p. 436, type *C. decollatus* sp. nov.; and *Thetidos*, p. 472, type *T. morsura* sp. nov.). The first is probably erroneously referred to Turbonillidæ, as there is nothing in the description or figure to suggest such a relation, so that a careful study of the animal is needed before such a question can be correctly determined. The second is placed with the Cerithiidæ, its nearest ally, *Cerithiopsis;* while the third is an addition to the Mangiliinæ but seems synonymous with *Nassarina* Dall (1889). Although the few figures given are unfortunately crude and coarse, they are of sufficiently large size to bring out the characters necessary for identification.

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'Über die thermo- und piezo-elektrischen Eigenschaften der Krystalle des ameisensauren Baryts, Bleioxyds, Strontians und Kalkes, des Schwefelsauren Kalis, des Glycocolls, Taurins und