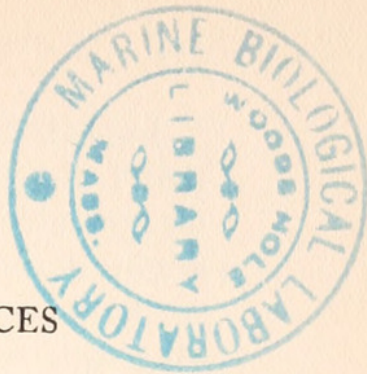


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X

RECTIFICATIONS OF NOMENCLATURE

BY

G. DALLAS HANNA

Curator, Department of Invertebrate Paleontology

During the winter of 1922-1923 Mr. Frank M. Anderson and the writer spent much time and labor in an endeavor to monograph the fauna of the Eocene at the type locality of the Tejon group in Kern County, California. In the course of the work several names of West American fossils were found to be preoccupied in geological literature and require replacing to accord with the rules of the International Commission of Zoological Nomenclature. To bring these to the notice of workers it was thought best to incorporate them in a separate paper, thinking they would be less likely to be overlooked than if they were scattered in publications dealing with various particular problems.

Before making a record of the few names thus found it was thought advisable to spend a short time in an examination of literature for the purpose of ascertaining if any other such instances needed attention. Accordingly, several days were spent in the libraries of the California Academy of Sciences and the University of California with the results set forth below.

Indeed, so many names requiring replacement were found that I almost decided to abandon the project and leave the disagreeable task of making corrections to others who might derive greater satisfaction therefrom. But my co-workers on the Pacific Coast have urged the publication of the document in order to keep the revisions in an accessible western publication rather than to have them scattered through the great mass of zoological literature as they might be discovered. It is regretted that the changes cannot be published anonymously.

During the last ten years a great deal of activity has been shown in western geology and paleontology and a study of the huge collections which have been assembled has made necessary the description of a great many new species. It is practically impossible for a student to be certain, when he adopts a new name, that it has not already been used for another species somewhere in the world. He can examine only a very small fraction of the total literature of his subject. For this reason, criticism of past efforts will be omitted. I shall merely point out a few sources of error, and incidentally refer to some standard books which may be useful to future workers before they publish their new names. If these be searched for the names they propose to introduce it is possible that they may discover that some have already been used.

Many thousands of species of living and fossil mollusks have been described in the past, and this very fact makes it unsafe to use any of the ordinary Latin descriptive terms for names. This is particularly true in the large genera such as *Pecten*, *Cardium*, *Pleurotoma*, etc. It is equally dangerous to use hackneyed proper names, either geographical or personal. The names of some states have been used over and over in literature and the same is true of some of our most celebrated paleontologists and conchologists. Also, it should be remembered that modern active workers are not always the only ones with the same surname who have been engaged in similar studies. Much as we may wish to perpetuate the names of university teachers of geology and others whom we admire, we should remember that in some note-

worthy cases there have been other beloved men in similar work elsewhere and their names have been given to species which are widely scattered in the literature.

There are still many new species of invertebrate fossils in western collections to be described, and probably a larger number in the field awaiting the explorer. It is hoped that the following pages will not discourage any worker who may take up the problems of monographing the exceedingly rich faunas of the western states. But before new names are published it is suggested that at least some time be given to a search to ascertain if they be valid. As many of the following works should be examined as possible, and if time permits, the student will do well to go farther afield. He should always remember that irrespective of the amount of time thus given he can never be certain that his names are actually new.

The geological publications of the western institutions should, of course, be examined. These include the Proceedings and Memoirs of the California Academy of Sciences, the University of California Publications in Geology, and the University of Washington Publications in Geology. Other standard works of reference are:

- Reeve, *Conchologica Iconica*
- Sowerby, *Conchological Illustrations*
- Sowerby, *Mineral Conchology of Great Britain*
- Sowerby, *Theasaurus Conchyliorum*
- Martini and Chemnitz, *Conchylogical Cabinet*
- Tryon, *Manual of Conchology*
- d'Orbigny, *Prodrome de Paleontology*
- Bronn, *Index Paleontologicus*
- Sherborn, *Index Animalium*
- Dall, *Tertiary Fauna of Florida*
- Gabb, *Paleontology of California*

These works contain or in themselves are indices, so that the search for names can be made with some rapidity. The great work of Sherborn is most valuable in this connection and gives a concrete picture of the enormity of zoological literature. The first volume takes the subject from 1758 to

1800 and succeeding volumes will complete it to 1850, but at the date of writing only the index as far as the name *affinis* has been published.¹

As a final search, if time permits, the student should examine the section on Mollusca (or other subject concerned) which has appeared each year in the Zoological Record since 1864. Most of the new species described are mentioned in these invaluable volumes.

There is little need for repetition of generic names. Scudder's Nomenclator Zoologicus lists practically all that appeared up to 1880. From 1880 to 1900 and from 1901 to 1910 the Zoological Record management has issued two volumes of "Index Zoologicus." Since 1910 the new names may be found at the end of each annual volume of the Zoological Record.

In making the following corrections and emendations I wish for the present to refrain from subscribing fully to the rules which make them necessary. Chief among these is the law of priority which prevents the use of the same name for two different species in the animal kingdom. It was expected that this rule would stabilize nomenclature, but it may be asked if the opposite has not been the real effect. In fact, it may be questioned if an attempt to change a well-established name does not actually produce more confusion than if it had been left alone. Most certainly it has this effect upon beginners in zoological classification. But, although the law of priority unquestionably has produced profound confusion in literature, it is generally accepted throughout the world. Through a long-continued process of sifting it may eventually produce a stabilized nomenclature, but it also seems likely that it will wreck our present scheme of classification completely.

It is customary when a writer discovers a homonym to rename the last-named species. Often this is done in his own contribution which may be upon a distinctly unrelated subject. Many times it has been done in a brief foot-note, in a check-list, or as a short contribution to a scientific journal. In a great many cases the correction entirely escapes

¹ Part 2, extending the index to *anus* has since appeared.

the notice of the workers in the field concerned because of its very obscurity. For these reasons it seems desirable to correct the names of West American species in a publication in the region concerned.

In a few cases it has been found that species elsewhere have been given the same names which had previously been used for western forms. These are renamed herein simply because it is current practice, or because the species in question is of interest to western students.

Attention is called herein to the names of some species which may or may not require replacement, in the hope that future students may take cognizance of them and determine the needs of the particular cases. In some families of mollusks the generic nomenclature is so unstable that it is not possible in the time available to determine if a western species belongs to the same genus as another elsewhere which bears the same specific name; sometimes they may and again they may not. I do not wish to add to the confusion unless it be necessary.

On account of the bibliographical difficulties involved it is not good practice to use a name which differs by only one or two letters from an established one. A few examples of such usage are cited.

The original authors of the specific names which are pre-occupied have been communicated with when possible without too great delay and I am therefore able to present new names by them. I only regret that it was not possible to do this in every case. Greatest appreciation is extended to Mr. Frank M. Anderson for aid in preparation of the list.

1. *Acila nehalemensis* Hanna, new name

Nucula (Acila) cordata DALL Trans. Wagner Free Inst. Sci., Vol. 3, pt. 4, 1898, p. 573, pl. 40, fig. 4, Miocene, Nehalem River, near Mist, Columbia County, Oregon.

Not *Nucula cordata* GOLDFUSS, Petref. Vol. 2, 1838, p. 155. pl. 125, fig. 6, France.

Not *Nucula (Nuculoidea) cordata* WILLIAMS & BERGER, U. S. Geol. Surv. Prof. Pap. 89, 1916, p. 175, pl. 19, fig. 6, Devonian, Maine.

The Oregon species, unfortunately, requires a different name.

Although *Nuculoidea* was described as a subgenus under *Nucula*, it was used as a genus where the actual description appears. The group seems to be distinct generically from *Nucula*, and the specific name might therefore be allowed to stand. A ruling by the committee on nomenclature of the International Commission would be advisable in this case.

2. *Acmaea ocitatia* Hanna, new name

Patella subquadrata DICKERSON, Proc. Calif. Acad. Sci., 4th Ser., Vol. 7, 1917, p. 182, pl. 31, figs. 13a, 13b, Oligocene near Vader, Lewis County, Washington.

Not *Patella subquadrata* DUNKER, Palæontographica, No. 1, 1847, p. 113 pl. 13, fig. 18.

The last cited species was renamed *dunkeri* by d'Orbigny because of a prior *P. subquadrata* of York but the reference need not be completed as it is obvious that Dickerson's name cannot be adopted in accordance with the present system of nomenclature.

3. *Acanthoceras turneri* (White)

Ammonites turneri WHITE, Bull. U. S. Geol. Surv., No. 51, 1889, p. 26, pl. 5, figs. 1, 2, Chico Cretaceous, Curry's Canada, south of Mt. Diablo, California; = "Acanthoceras." F. M. A.

Not *Ammonites turneri* SOWERBY, Mineral Conchology, Vol. 5, 1825, p. 75, pl. 452; = "Schloenbachia." F. M. A.

A rigid interpretation of the rules would require that the California fossil be renamed. But Mr. F. M. Anderson is of the opinion that this should not be done since *Ammonites* in its original broad sense is obsolete as a generic name and the two species obviously belong to different genera.

4. *Antiplanes rotula* Dall¹

Antiplanes rotula DALL, U. S. Nat. Mus. Bull. 112, 1921, pp. 71, 200; new name for *Pleurotoma smithi* Arnold, not Forbes.

¹ The date "1919" which appears after the name "*rotula*" on p. 71 of Bull. 112, U. S. Nat. Mus., is evidently an error due to delayed publication. I have been informed by Dr. Fred Baker, Point Loma, California, that there are several such unavoidable discrepancies in the paper. Such may easily happen when a paper is held in press for a period of years.

Pleurotoma (Spirotropis) smithi ARNOLD, Mem. Calif. Acad. Sci., Vol. 3, 1903, p. 216, pl. 6, fig. 13, Pliocene, Deadman Island, Los Angeles County, California.

Not *Pleurotoma trevelyana smithii* JEFFREYS, Ann. Mag. Nat. Hist. 1876, p. 332.

Not *Pleurotoma smithii* FORBES, Ann. Mag. Nat. Hist. 1840, p. 107, pl. 2, fig. 14.

Tryon has stated² that Forbes species is a synonym of *Drillia costulata* Blainville, but a new name was necessary for Arnold's species nevertheless, because it is an exact homonym. It is not known if the subspecies described by Jeffreys is sufficiently distinct to require a new name.

5. *Arca invalida* Hanna, new name

Arca dalli BROWN & PILSBRY, Proc. Nat. Acad. Sci. Phila. 1912, p. 510, pl. 23, fig. 4, [Miocene], Culebra Cut, Isthmus of Panama.

Not *Arca (Macrodon) dalli* SMITH, Challenger Rept., Vol. 13, 1885, p. 269, pl. 17, figs. 10, 10b, off Kobé, Japan, living.

The importance of the Gatun fauna has become apparent in recent years because it occupies a key position in Atlantic-Pacific correlation. Western paleontologists are making constant use of the various species and large collections are in some of the museums, notably that in the California Academy of Sciences, made by Messrs. F. M. Anderson and Bruce G. Martin. It is therefore necessary to provide a name for the species of *Arca* previously provided with a homonym.

6. *Astarte ? acerba* Hanna, new name

Astarte ? sulcata PACKARD, Univ. Calif. Publ. Geol. Vol. 13, 1922, p. 424, pl. 33, fig. 6, Cretaceous, Santa Ana Mountains, California.

Not *Astarte sulcata* (DA COSTA), Brit. Conch., 1778, p. 192, a living species.

Not *Astarte sulcata* LEA, 1833 of Claiborn, Eocene, (Vide DALL, Trans. Wag. Free Inst. Sci. Vol. 3, pt. 6, 1903, pp. 1483, 1487, 1490).

In a revision of the family Astartidæ in 1903, Dall³ gave *Astarte sulcata* (Da Costa) as the type of the genus. It therefore becomes impossible to apply the same name to the California Cretaceous fossil.

² Man. Conch. Vol. 6, p. 374.

³ Proc. U. S. Nat. Mus., Vol. 26, 1903, p. 936.

7. *Borsonella angelana* Hanna, new name

Pleurotoma (*Borsonia*) *dalli* ARNOLD, Mem. Calif. Acad. Sci., Vol. 3, 1903, p. 201, pl. 6, fig. 2, Lower San Pedro Group, Deadman Island, Los Angeles County, California.

Not *Pleurotoma dalli* VERRILL & SMITH, Trans. Conn. Acad. Sci., Vol. 5, 1882, p. 451, pl. 57, figs. 1, 1a, East Coast North America, living; Tryon, Manual Conch., Vol. 6, p. 181, placed the species in *Drillia*.

The California fossil described by Arnold became the type of the subgenus *Borsonella* Dall.⁴ A new specific name is required, however, because the one in current use is an exact homonym.

Tryon placed Verrill & Smith's species in "*Drillia*," which has lately become an abandoned name for West American shells.

8. *Borsonella* ? *nuncapatia* Hanna, new name

Turris lincolnensis VAN WINKLE, Univ. Wash. Publ. Geol., Vol. 1, No. 2, 1918, p. 92, (pl. 7, fig. 24, is cited but does not appear in the publication), Oligocene near Lincoln Creek Station, Washington.

Not *Turris lincolnensis* ANDERSON & MARTIN, Proc. Calif. Acad. Sci., 4th Ser., Vol. 4, 1914,, p. 88, pl. 6, fig. 8, Miocene of Oregon Coast five miles south of Yaquina Bay, Loc. 36. (C. A. S. Coll.)

Miss Van Winkle did not illustrate her "*Turris lincolnensis*," but a comparison of the description with Anderson & Martin's type, description and figure shows that different species were being considered. In the absence of a figure or comparison with other species the generic reference must be provisional until these are supplied. From the description alone it might be placed in any one of several groups now given generic standing.

9. *Borsonella polynotata* Hanna, new name

Turris (*Drillia*) *modestus* MOODY, Univ. Calif. Publ. Geol., Vol. 10, 1916, p. 54, pl. 1, fig. 8, Pliocene, Los Angeles, California.

Not *Pleurotoma modesta* SOWERBY, Proc. Zool. Soc. London, 1833, p. 136, which Reeve, (Conch. Icon. Vol. 1, 1843,) considered the same as *P. cincta* Lamarck.

Not *Pleurotoma modesta* WEINKAUFF, Kuster, Conch. Cab., p. 44, pl. 9, fig. 9.

⁴ Bull. 43, Mus. Comp. Zool. Harvard, 1907, p. 258.

Not *Clathurella modesta* ANGAS, Proc. Zool. Soc. London, 1877, p. 38, pl. 5, fig. 15.

The name selected by Moody for the California Pliocene species is unfortunately not available through prior use of the same specific portion for species, some of which are obviously congeneric.

10. *Bullaria obtenta* Hanna, new name

Bullaria tumida PACKARD, Univ. Calif. Publ. Geol., Vol. 13, 1922, p. 433, pl. 37, fig. 2, (not fig. 4), Cretaceous of southern California.

Not *Bulla tumida* A. ADAMS, in SOWERBY, Theasaurus Conchyliorum, p. 573, pl. 125, fig. 169.

Since it is generally accepted that *Bullaria* properly replaces *Bulla* it is not possible to use the specific name *tumida* as above for the California fossil.

11. *Cancellaria angelana* Hanna, new name

Cancellaria quadrata MOODY, Univ. Calif. Publ. Geol., Vol. 10, 1916, p. 56, pl. 1, fig. 6, Pliocene, Los Angeles, California.

Not *Cancellaria quadrata* SOWERBY, Mineral Conchology, Vol. 4, 1823, p. 83, pl. 360, Eocene, Barton, England, (see Newton, Cat. Oligocene and Eocene, Brit. Mus., p. 172).

Moody's name is an exact homonym and must be replaced in accordance with the international rules of nomenclature.

12. *Cancellaria siletzensis* Anderson, new name

Cancellaria rotunda ANDERSON & MARTIN, Proc. Calif. Acad. Sci., 4th Ser., Vol. 4, 1914, p. 87, pl. 8, figs. 4a, 4b, Miocene, one-half mile north of Yaquina Bay, Oregon.

Not *Cancellaria conradiana rotunda* DALL, Trans. Wagner Free Inst. Sci., Vol. 3, pt. 2, 1892, p. 224, pl. 3, fig. 13 (in pt. 1), Miocene, North Carolina.

As the name of the Oregon species is a homonym and cannot be used, Mr. F. M. Anderson has proposed a substitution as above.

13. *Cancellaria fernandoensis tribulus* Nomland

Cancellaria fernandoensis tribulus NOMLAND, Univ. Calif. Publ. Geol., Vol. 10, 1917, p. 238, pl. 12, figs. 1, 1a, Etchegoin Pliocene, Middle California.

Not *Voluta tribulus* BROCCHI, Conch. Fossil. Subapennina, 1814, p. 310, pl. 3, fig. 14; Risso, placed this species in *Cancellaria*.

There would seem to be some doubt as to the usefulness of the subspecies *tribulus*, described by Nomland; the material upon which it was based was not well preserved and it may be questionable whether it can be distinguished sufficiently well to be retained as a definitely named form. Attention is called to the matter here because the name chosen would probably have to be abandoned if the species should be retained.

14. *Cancellaria simiana* Hanna, new name

Cancellaria crassa WARING, Proc. Calif. Acad. Sci., 4th Ser., Vol. 7, July 30, 1917, p. 66, pl. 9, fig. 5, Chico Cretaceous, Bell's Canyon, Simi Hills, Los Angeles County, California.

Not *Cancellaria crassa* NOMLAND, Univ. Calif. Publ. Geol., Vol. 10, April 19, 1917, p. 237, pl. 12, figs. 7, 7a, Etchegoin Pliocene, Waltham Creek near Coalinga, California.

Only three months intervened between the appearance of these two species with the same name. Since the Cretaceous form was the later it requires to be renamed.

15. *Cardium gorgasi* Hanna, new name

Cardium (*Lævicardium*) *dalli* TOULA, Jahrbuch der Kaiserlich-Königlichen Geologischen Reichsanstalt, Vol. 58, 1908, p. 722, Isthmus of Panama, [Miocene].

Not *Cardium dalli* DICKERSON, 1913, see p. —

Not *Cardium dalli* HEILPRIN, Trans. Wagner Free Inst. Sci., Vol. 1, 1887, p. 131, pl. 16a, fig. 70, Pliocene of Florida.

The Gatun species is apparently unfigured,⁵ but it does not appear to have been renamed, although it is an exact homonym. Very large Gatun collections are being studied by western paleontologists and the species is therefore renamed here for their use. The specific name is chosen for Surgeon General W. C. Gorgas, whose labors made the cutting of the Panama Canal possible.

⁵ See Brown and Pilsby Proc. Acad. Nat. Sci. Phila., 1911, p. 367.

16. *Cardium marysvillensis* Dickerson

Cardium dalli DICKERSON, Univ. Calif. Publ. Geol., Vol. 7, 1913, p. 289, pl. 14, figs. 4a, 4b, 4c, Eocene, Marysville Buttes, Sutter County, California.

Not *Cardium dalli* TOULA, 1908, see p. —.

Not *Cardium dalli* HEILPRIN, Trans. Wagner Free Inst. Sci., Vol. 1, 1887, p. 131, pl. 16a, fig. 70, Pliocene of Florida. — DALL, Trans. Wagner Free Inst. Sci., Vol. 3, pt. 5, 1900, p. 1090.

Cardium marysvillensis DICKERSON, Univ. Calif. Publ. Geol., Vol. 9, 1916, p. 482.

Dr. Dickerson discovered that his name "*Cardium dalli*" was a homonym and renamed the species as shown. Attention is called to it here in order to aid in proper specific reference in the future.

17. *Cerithiopsis alternata* Gabb

Cerithiopsis alternata GABB, Geol. Surv. Calif. Pal., Vol. 1, 1864, p. 116, pl. 21, figs. 114, 114a, Martinez Eocene, California.

Not *Cerithium alternatum* SOWERBY, Thes. Conch., Vol. 2, 1855, p. 872, figs. 70, 73, 179, Philippine Islands, living.

There is cause for some doubt as to the reference of Gabb's species to *Cerithiopsis*; it would seem to be equally well placed in *Cerithium* and may in fact properly belong there. Attention is called to the earlier name here in hopes that someone who may study the Martinez fauna may be able to determine the matter definitely.

18. *Cerithiopsis preussi* Hanna, new name

Cerithiopsis oregonensis DICKERSON, Proc. Calif. Acad. Sci., 4th Ser., Vol. 4, 1914, p. 121, pl. 11, figs. 5a, 5b, Eocene Roseburg Quadrangle, Oregon.

Not *Cerithiopsis* ? *oregonensis* CONRAD, Am. Journ. Conch., Vol. 1, 1865, p. 151; name for figs. 13, 14, pl. 20, Geol. U. S. Exp. Exped. Atlas, 1849.

Conrad's species has been placed in the genus *Turritella*,⁶ but that does not permit the name to be used again as Dickerson proposed because it is an exact homonym.

The new name is in honor of Mr. Charles Preuss, the topographer who accompanied Captain J. C. Fremont on his memorable overland journey to Oregon and California in 1843-1844.

⁶Dall, Trans. Wagner Free. Inst. Sci., Vol. 3, pt. 2, 1892, p. 271; U. S. Geol. Surv. Prof. Paper 59, 1909, p. 78.

19. *Cerithium* ? *teslaensis* Hanna, new name

Cerithium branneri HALL & AMBROSE, Nautilus, Vol. 30, 1916, p. 20, Middle Cretaceous, Corral Hollow, Tesla Quadrangle, California.

Not *Cerithium branneri* WHITE, Arch. Mus. Nat. Rio de Janeiro, Vol. 8, 1887, p. 153, Brazil.

Unfortunately Hall & Ambrose failed to illustrate their species and it is very difficult to determine the exact generic relationship without an examination of the original specimens. But their name in this case is an exact homonym and must be replaced or discarded altogether. The writer is in favor of taking the latter course with all unillustrated species, but there appears to be no authority to warrant such action at present.

20. *Chama grunskyi* Hanna, new name

Chama pacifica DICKERSON, Proc. Calif. Acad. Sci., 4th Ser., Vol. 7, 1917, p. 172, pl. 29, fig. 10, "Oligocene" near Vader, Lewis County, Washington.

Not *Chama pacifica*, BRODERIP, Proc. Zool. Soc. London, 1834, p. 149, Lord Hood's Island, Pacific Ocean.

The name of the Washington species is an exact homonym and the new one is selected in honor of Mr. C. E. Grunsky, President of the California Academy of Sciences.

21. *Chrysodomus* ? *prænominata* Hanna, new name

Chrysodomus packardi NOMLAND, Univ. Calif. Publ. Geol., Vol. 10, 1917, p. 235, pl. 12, figs. 4, 4a, 4b, Etchegoin Pliocene, California.

Not *Chrysodomus packardi* WEAVER, Univ. Wash. Publ. Geol., Vol. 1, No. 1, 1916, p. 47, pl. 4, figs. 57, 58, near Lincoln Creek Station, Washington.

The species described by Nomland requires a new name because the one he chose had already been used by Weaver. The proper generic determination of the California species is difficult to ascertain from the figures and description; it is therefore left questionably in *Chrysodomus*.

Tryon in 1881⁷ named some fossil shells from Maine "*Buccinum packardi*." If it should be shown that the Washington fossil belongs to *Buccinum* then it would require a new

⁷ Man. Conch., Vol. 3, 1881, p. 185.

name, although Tryon's species cannot be recognized from his description. Such circumstances as this form one of the most discouraging parts of modern taxonomy.

22. *Columbella arnoldi* Dall

Columbella (Anachis) arnoldi DALL, Proc. U. S. Nat. Mus., Vol. 34, 1908, p. 250, new name for

Columbella (Anachis) minima ARNOLD, Mem. Calif. Acad. Sci., Vol. 3, 1903, p. 237, pl. 9, fig. 8, Pleistocene, San Pedro, California.

Dr. Dall stated that Arnold's species required a new name because the one given was "several times preoccupied." No citation was given to the literature where one may find an earlier use of the name and in the limited time at my disposal I have failed to find any. Nevertheless, it is quite probable that so common a Latin derivative would have been appropriated long ago.

23. *Corbula binominata* Hanna, new name

Corbula tenuis MOODY, Univ. Calif. Publ. Geol., Vol. 10, No. 4, 1916, p. 59, pl. 2, figs. 4a, 4b, Pliocene, Los Angeles, California.

Not *Corbula tenuis* SOWERBY, Proc. Zool. Soc. London, 1833, p. 36.

Not *Pachydon tenua* GABB, Amer. Journ. Conch., Vol. 4, 1868, p. 199, pl. 16, figs. 6, 6a, upper Amazon, South America; Dall (Trans. Wagner Free Inst. Sci. Vol. 3, pt. 4, 1898, p. 840) called Gabb's species "*Corbula (Anisothyris) tenuis* (Gabb)."

The California Pliocene species requires to be renamed because it is an exact homonym of the species dating from 1833, even though there might be some question as to the Amazon species falling into *Corbula* where Dall placed it.

24. *Corbula complicata* Hanna, new name

Corbula dilatata WARING, Proc. Calif. Acad. Sci., 4th Ser., Vol. 7, 1917, p. 92, pl. 15, fig. 2, "Tejon" Eocene, McCray Wells, Ventura County, California.

Not *Corbula dilatata* EICHWALD, Naturh. Skizze Lithuaen, etc., 1830, p. 205.

The name selected by Waring is an absolute homonym and cannot be used, according to present rules of nomenclature. There is considerable doubt as to whether the hori-

zon from which the fossil came is equivalent to the Eocene at the Type locality of the Tejon Group.

25. *Crassatellites dalli* Weaver

Crassatellites dalli WEAVER, Univ. Wash. Publ. Geol., Vol. 1, No. 1, 1916, p. 39, pl. 2, figs. 15-18, upper Eocene of Washington.

Not *Cuna dalli* VANATTA, Proc. Acad. Nat. Sci. Phila., Vol. 55, 1903, p. 759, fig. 3, Indian Pass, West Florida, living.

Maury⁸ has placed Vanatta's species from Florida in the genus *Crassatellites* and considered *Cuna* as a subgenus, a course previously taken by Dall.^{8a} If this action be justified then Weaver's species requires to be renamed. But it does not seem that the minute forms usually referred to *Cuna* can be included with the large Eocene crassatellids in view of the fine distinctions which are used for generic discrimination of late years. Therefore it seems to me that the Washington *dalli* can be considered a valid name, at least for the present.

26. *Cryptoconus injucundus* Hanna, new name

Drillia cooperi DICKERSON, Univ. Calif. Publ. Geol., Vol. 9, 1916, p. 491, pl. 40, figs. 4a, 4b, Eocene, Marysville Buttes, Sutter County, California.

Not *Pleurotoma (Dolichotoma) cooperi* ARNOLD, Mem. Calif. Acad. Sci., Vol. 3, 1903, p. 203, pl. 7, fig. 3, upper San Pedro Group, San Pedro, California.

It appears that both of the above species belong to the group of turrids which Dall⁹ has recently referred to the genus *Cryptoconus* and which have variously been called *Surcula*, *Pleurotoma*, *Bathytoma*, etc. This makes necessary the renaming of the Eocene species.

27. *Cymbophora intoxicata* Hanna, new name

Cardium (Proctocardia) linteum CONRAD, Journ. Acad. Nat. Sci. Phila., 2nd Ser., Vol. 4, 1858-1860, p. 278, pl. 46, fig. 17, Tippah County, Mississippi.

⁸ Bulletin 34, Amer. Paleo., 1920, p. 77.

^{8a} Trans. Wagner Inst., Vol. 3, pt. 3.

⁹ Bull. 112, U. S. Nat. Mus. 1922.

Not *Cardium linteum* CONRAD, House Doc. 129, Projected Vol. 3, 33d Congress, first Sess. 1855, Appendix to Report of W. P. Blake, p. 9; Pacific R. R. Reports Vol. 5, 1857, p. 320, pl. 2, fig. 1, type Tejon Eocene, Grapevine Creek, Kern County, California.

Conrad evidently overlooked the fact that he had already used the name *lin-teum* with *Cardium* when he described the Mississippi fossil. This he later made the type of his new genus *Veleda*,¹⁰ and Gabb in 1876¹¹ placed the species in his genus *Cymbophora* of the Mactridæ. Here Johnson left it in his annotated list of the Philadelphia Academy's types.¹² Whitfield had previously refigured the species¹³ as *Veleda linte-a*.

28. *Epitonium insecuretum* Hanna, new name

Epitonium (Boreoscala) washingtonensis WEAVER & PALMER, Univ. Wash. Publ. Geol., Vol. 1, No. 3, 1922, p. 30, pl. 11, fig. 19, Eocene, McClarety Ranch, near Vader, Lewis County, Washington.

Not *Epitonium washingtonensis* WEAVER, Univ. Wash. Publ. Geol., Vol. 1, No. 1, 1916, p. 43, pl. 4, figs. 46, 47, Oligocene, near Lincoln Creek Station, Washington.

The appearance of these two species with the same name, in the same series of publications and partially by the same author, is doubtless due to the employment over and over again of the hackneyed name "*washingtonensis*." The practice leads to other bibliographical difficulties when species are transferred to other genera without cross references. The last *E. washingtonensis* must receive a new name; and the correct rendering of the first is *Epitonium washingtonense* Weaver.

29. *Fossarus barkeri* Anderson, new name

Fossarus dalli ANDERSON & MARTIN, Proc. Calif. Acad. Sci., 4th Ser., Vol. 4, 1914, p. 70, pl. 7, figs. 13a, 13b, Lower Miocene of Barker's Ranch, Kern River, Kern County, California.

Not *Trichotropis dalli* WHITFIELD, U. S. Geol. Surv. Monog. 24, 1895, p. 127, pl. 23, figs. 1-4, Miocene of New Jersey.

¹⁰ Amer. Journ. Conch., Vol. 6, 1871, p. 74.

¹¹ Proc. Acad. Nat. Sci. Phila. 1876, p. 306.

¹² Opt. cit. 1905, p. 17.

¹³ Monograph 9, U. S. Geol. Surv. 1885, p. 172, pl. 23, figs. 20, 21.

That the above species belong to the same genus is evident upon an examination of the figures. Martin¹⁴ has apparently correctly placed the New Jersey form in *Fossarus*. Mr. F. M. Anderson has therefore supplied the above substitute name.

30. *Fusinus arnoldi* (Cossmann)

Fusus rugosus TRASK, Proc. Calif. Acad. Nat. Sci., Vol. 1, 1855, p. 41, [Pleistocene], San Pedro, California. — ARNOLD, Mem. Calif. Acad. Sci., Vol. 3, 1903, p. 226, pl. 4, fig. 7.

Fusus arnoldi COSSMANN, Rev. Paleozool. Vol. 7, 1903, p. 215; new name for *F. rugosus* TRASK, not Lamarck, 1804.

Fusinus traski DALL, Nautilus, Vol. 29, 1915, p. 54; new name for *Fusus rugosus* TRASK, not Lamarck, 1804.—DALL, Bull. U. S. Nat. Mus., 112, 1921, p. 88.

Fusus rugosus was used by Lamarck in 1804, Sowerby 1820, and Grateloup 1847, before Trask. Cossmann noticed the homonym in 1903 and renamed it *F. arnoldi*, and was followed by Dall in 1915 who again renamed it *F. traski*. It is hoped that this notice may aid in stabilizing the name of this important species.

31. *Fusinus monksæ* Dall

Fusinus monksæ DALL, Nautilus, Vol. 29, 1915, p. 55; new name for *Fusus robustus* TRASK, Proc. Calif. Acad. Nat. Sci., Vol. 1, 1855, p. 41, [Pleistocene] San Pedro, California.

32. *Fusinus obtentus* Hanna, new name

Fusinus (Priscofusus) lineatus DICKERSON, Univ. Calif. Publ. Geol., Vol. 7, 1913, p. 281, pl. 11, fig. 11 (not 12 as cited), Eocene, Marysville Buttes, Sutter County, California.

Not *Fusus lineatus* QUOY, Voyage of the Astrolabe, Zool., Vol. 2, 1832, p. 501, pl. 34, figs. 6-8, New Zealand, living.

The previous use of *lineatus* for a species of *Fusus* or *Fusinus* invalidates the name of the California fossil. Tryon¹⁵ also mentions a *Fusus lineatus* of Menke but the reference has not been completed.

¹⁴ Maryland Geol. Surv. Miocene, 1904, p. 245.

¹⁵ Man. Conch., Vol. 3, 1881, p. 68.

33. *Galeodea tuberculiformis* Hanna, new name

Morio (*Sconsia*) *tuberculatus* GABB, Geol. Surv. Calif. Pal., Vol. 1, 1864, p. 104, pl. 19, fig. 57, Eocene, Martinez, etc., California.

Not *Cassidaria tuberculata* RISSO, Hist. Nat. Eur. Mer., Vol. 4, 1826, p. 186.

It has been shown¹⁶ that the type species of *Cassidaria* and *Morio* is the same as the type species of the earlier genus-name, *Galeodea*, and *Sconsia* cannot be used for greater than a sub-generic group. The use of the name *tuberculata* in *Cassidaria* by Risso invalidates it in *Galeodea* providing the earlier name represents a real species of this generic relationship. This it evidently does if we may rely upon the writings of other European paleontologists.

34. *Gilbertina* Ulrich

Gilbertina ULRICH, Harriman, Alaska Exp., Vol. 4, 1910, p. 140; Type *G. spiralis*.

Not *Gilbertina* JORDAN & STARKS, Proc. Calif. Acad. Sci., 2nd Ser., Vol. 5, 1895, p. 811, pl. 86; for *G. sigalutes*, n. sp. of fish from Puget Sound.

Ulrich questioned the plant relationship of this supposed fucoid. If subsequent study should show it to be of animal origin a new genus-name will be required because of a prior *Gilbertina* in zoology.

35. *Glycymeris larvata* Hanna, new name

Glycymeris conradi DALL, U. S. Geol. Surv. Prof. Paper 59, 1909, p. 107, pl. 11, fig. 2, Miocene [Pliocene] Coos Bay, Oregon.

Not *Axinea conradi* WHITFIELD, U. S. Geol. Surv. Monog. 9, 1885, p. 230, pl. 29, figs. 10-11, New Jersey.

Whitfield's reference of his New Jersey species to *Axinea* was in accordance with best usage at the time he wrote but the name *Glycymeris* has replaced it of late years. Therefore Dall's Oregon species requires a different name and *larvata* is hereby proposed.

36. *Glyphostoma oscilata* Hanna, new name

Pleurotoma (*Clathurella*, *Glyphostoma*) *dalli* BÖSE & TOULA, Jahrbuch der Kaiserlich-Königlichen Geologischen Reichsanstalt, Vol. 60, 1910, p. 252, pl. 13, fig. 27, Isthmus of Tehuantepec, [Miocene ?]

¹⁶ Dall, U. S. Geol. Surv. Prof. Pap. 59, 1909, p. 64, etc.

Not *Pleurotoma* (*Borsonia*) *dalli* ARNOLD, 1903, see p. —.

Not *Pleurotoma dalli* VERRILL & SMITH, Trans. Conn. Acad. Sci., Vol. 5, 1882, p. 451, pl. 57, figs. 1, 1a, East Coast of North America, living.

The Tehuantepec fossil was given a name which unfortunately had been used at least twice previously. Since very considerable collections from that general region have lately come to western museums for study the species is hereby renamed for use in forthcoming reports.

37. *Gyrodes insecureis* Hanna, new name

Natica (*Gyrodes*) *lineata* DICKERSON, Univ. Calif. Publ. Geol., Vol. 8, 1914, p. 141, pl. 13, figs. 3a, 3b, Martinez Eocene, near Stewartsville, California.

Not *Natica lineata* LAMARCK, An. sans Vert. Deshayes Ed. Vol. 8, 1838, p. 640; vide Tryon, Man. Conch., Vol. 8, 1886, pp. 29, 86, Philippines, living.

Dickerson's name is an exact homonym and therefore cannot stand in zoological literature, according to the rules of nomenclature.

38. *Gyrodes negligentus* Hanna, new name

Natica (*Gyrodes*) *alveata* CONRAD, Journ. Acad. Nat. Sci., 2nd Ser., Vol. 4, 1858-60, p. 289, pl. 46, fig. 45, Tippah County, Mississippi.

Not *Natica alveata* CONRAD, House Doc. 129, Projected Vol. 3, 33rd Congress, 1st Sess., 1855, App. to Prelim. Geol. Report of W. P. Blake, p. 10.—CONRAD, Pacific R. R. Reports, Vol. 5, 1857, p. 321, pl. 2, figs. 8, 8a, Tejon Eocene, Grapevine Creek, Kern County, California.

In describing the Mississippi fossil Conrad evidently overlooked the fact that he had previously used the same name for a California Eocene species which properly belongs in *Amauropsis* or, as lately suggested, *Ampullospira*. A new name is therefore needed for the eastern species.

39. *Hamites klamathensis* Anderson, new name

Hamites armatus ANDERSON, Proc. Calif. Acad. Sci., 2nd Ser., Vol. 2, 1902, p. 89, pl. 5, figs. 130-132, Lower Chico Cretaceous near Henley, Siskiyou County, California.

Not *Hamites armatus* SOWERBY, Mineral Conchology Vol. 2, 1817, p. 153, pl. 163; Vol. 3, 1821, p. 59, pl. 234, fig. 2.—D'ORBIGNY, Paleont. France, Terr. Cret. Vol. 1, p. 547, pl. 135.

40. *Hamites siskiyouensis* Anderson, new name

Hamites ellipticus ANDERSON, Proc. Calif. Acad. Sci., 2nd Ser., Vol. 2, 1902, p. 87, pl. 3, figs. 102-103; pl. 10, fig. 191, Chico Cretaceous, Southern Oregon.

Not *Hamites ellipticus* MANTELL, Geol. Sussex, 1822, p. 123, pl. 23, fig. 9.

41. *Leda denominata* Hanna, new name

Leda milleri DICKERSON, Univ. Calif. Publ. Geol., Vol. 8, 1914, p. 123, pl. 7, fig. 4, Martinez Eocene, near Stewartsville, California.

Not *Nuculana milleri* GABB, Journ. Acad. Nat. Sci. Phila., 2nd Ser., Vol. 8, 1881, p. 346, pl. 44, figs. 22, 22a, Sapote, Costa Rica.

There is still some difference of opinion as to whether *Leda* or *Nuculana* shall be the genus-name of this well-known group of Pelecypoda. But in either case the Martinez species must have a different name because it obviously is generically related to the Costa Rican form but specifically different.

42. *Leda polynominata* Hanna, new name

Corbula gabbii DALL, Trans. Wagner Free Inst. Sci., Vol. 3, pt. 4, 1898, p. 840; new name for

Corbula alæformis GABB, Geol. Surv. Calif. Paleo., Vol. 2, 1869, p. 177, pl. 29, fig. 63, Martinez or Tejon Eocene near Lower Lake Village, Lake County, California, which Stanton, (U. S. Geol. Surv. 17th Annual Report, 1895-1896, p. 1040, pl. 64, figs. 6, 7,) determined to belong to the genus *Leda*.

Not *Corbula aliformis* CONRAD, Amer. Journ. Conch., Vol. 2, 1866, p. 76.

Not *Leda gabbii* GABB, Geol. Surv. Calif. Pal., Vol. 2, 1869, p. 197.

The large species of *Leda* from Lower Lake, Lake County, California, is involved in a nomenclatorial tangle to an excessive degree. The only way out, in accordance with the rules, seems to be to rename it. Gabb described it as *Corbula alæformis*, but Dall renamed it *Corbula gabbii* because of the prior *Corbula aliformis* of Conrad. Stanton in 1895-96 discovered that it belonged to the genus *Leda* and not *Corbula*, and in this decision he has been followed by Dickerson.¹⁷ But there was already a species named *gabbii* in *Leda* when Dall changed the name

¹⁷ Univ. Calif. Publ. Geol., Vol. 8, 1914, p. 107.

of *alafomis*. It is therefore impossible to use the name *gabbii* for the Lower Lake species. The first *Leda gabbii* GABB dates from 1869 and was applied to a fossil from various California formations which had in 1864 been recorded questionably by Gabb as his *Leda protexta* of New Jersey. Conrad cannot be considered as having had any hand in the naming of the species *gabbii*; his name appeared as *Nuculana gabbi*¹⁸ and is an absolute *nomen nudum*; therefore it has no standing whatsoever in literature.

43. *Lucina invalida* Hanna, new name

Lucina cretacea WHITFIELD, U. S. Geol. Surv. Monog. 9, 1885, p. 129, pl. 18, figs. 23-25, Eocene Haddonfield, New Jersey; name given to a shell figured by Conrad, Am. Journ. Conch., Vol. 5, pl. 9, fig. 14.

Not ? *Lucina cretacea* GABB, Geol. Surv. Calif. Pal., Vol. 1, 1864, p. 177, pl. 30, fig. 255; Vol. 2, 1869, p. 243, Eocene, vicinity of Mt. Diablo, California.

Whitfield must be cited as the author of the name of the New Jersey fossil; Conrad published a figure but only named the shell on a museum label. It seems to be a fairly important species of the east coast and is therefore renamed herein as above.

44. *Marginella instabilata* Hanna, new name

Marginella pacifica DICKERSON, Proc. Calif. Acad. Sci., 4th Ser., Vol. 7, 1917, p. 178, pl. 31, fig. 2, Oligocene, Greece Ranch, near Vader, Washington.

Not *Marginella pacifica* PEASE, Amer. Journ. Conch., Vol. 3, 1868, p. 280, pl. 23, fig. 20, Paumotus Islands, living.

The name of the Washington species is an exact homonym and must therefore be replaced to conform to the rules of nomenclature.

45. *Melanella gabbiana* (Anderson & Martin)

Eulimella gabbiana ANDERSON & MARTIN, Proc. Calif. Acad. Sci., 4th Ser., Vol. 4, 1914, p. 68, pl. 7, fig. 20, Lower Miocene, Kern County, California.

Melanella (*Melanella*) *gabbiana* (ANDERSON & MARTIN), BARTSCH, Proc. U. S. Nat. Mus., Vol. 53, 1917, p. 316, pl. 38, fig. 3.

¹⁸ Check-list Eocene and Oligocene Fossils. Smith. Miscellaneous collection No. 200, 1866, p. 3.

The notice of transfer of this species to *Melanella* is included herein because it might otherwise escape attention. The fossil came from a very important California formation, Lower Miocene of Kern River, Kern County.

46. *Melanella johnsoni* Hanna, new name

Melanella gabbiana PILSBRY & JOHNSON, Proc. Acad. Nat. Sci. Phila., 1917, p. 182, "Oligocene" San Domingo.

Not *Eulimella gabbiana* ANDERSON & MARTIN, Proc. Calif. Acad. Sci., 4th Ser., Vol. 4, 1914, p. 68, pl. 7, fig. 20, Lower Miocene, Kern County, California. Bartsch (Proc. U. S. Nat. Mus., Vol. 53, 1917, p. 316, pl. 38, fig. 3) has placed this species in the genus *Melanella*.

From the above it will be seen that a new name is required for the San Domingo species. The one selected is chosen in honor of Dr. Charles W. Johnson, the distinguished Curator of the Boston Society of Natural History.

47. *Modiolus complicatus* Hanna, new name

Modiola (Lithodomus ?) inflata WHITFIELD, U. S. Geol. Surv. Monog. 9, 1885, p. 197, pl. 26, figs. 1, 2, New Jersey.

Not *Mytilus inflatus*, TOUMEY & HOLMES, Pleis. Foss. South Carolina, 1855, p. 33, pl. 14, fig. 3.

Whitfield¹⁹ and Dall²⁰ have both considered the South Carolina fossil to belong to the genus *Modiolus*, which makes necessary a new name for the New Jersey form.

48. *Modiolus trinominata* Hanna, new name

Modiolus inflatus DALL, U. S. Geol. Surv. Prof. Paper 59, 1909, p. 114, pl. 12, figs. 8, 9, Miocene, [Pliocene], Coos Bay, Oregon.

Not *Mytilus inflatus* TOUMEY & HOLMES, Pleis. Foss. South Carolina, 1855, p. 33, pl. 14, fig. 3, which Whitfield (U. S. Geol. Surv. Monog. 24, 1895, p. 39, pl. 6, figs. 3, 4;) and Dall (Trans. Wag. Free Inst. Sci., Vol. 3, pt. 4, 1898, p. 793;) have placed in *Modiolus*.

Not *Modiola (Lithodomus?) inflata* WHITFIELD, U. S. Geol. Surv. Monog. 9, 1885, p. 197, pl. 26, figs. 1, 2, New Jersey.

It appears from the literature that the name of the Oregon fossil is twice preoccupied; it therefore requires a new

¹⁹ U. S. Geol. Surv. Monog. 24, 1895, p. 39, pl. 6, figs. 3, 4.

²⁰ Trans. Wag. Free Inst. Sci., Vol. 3, pt. 4, 1898, p. 793.

name. Dall considered the Coos Bay formation Miocene, but Howe has lately determined it to be Pliocene.

49. *Murex calamitus* Hanna, new name

Murex vaughani DICKERSON, Proc. Calif. Acad. Sci., Vol. 7, 4th Ser., 1917, p. 174, pl. 30, figs. 3a, 3b, Oligocene, Greece Ranch near Vader, Lewis County, Washington.

Not *Murex vaughani* MAURY, Bull. Am. Paleo., Vol. 4, No. 21, 1910, pp. 143-144, Oligocene, Florida.

Although these two species were named for different persons the name of the Washington fossil is an exact homonym and according to the rules cannot stand.

50. *Murex (Orinebra) rodeoensis* Clark, new name

Murex (Ocinebra) packardi CLARK, Univ. Calif. Publ. Geol., Vol. 8, August 30, 1915, p. 501, pl. 69, figs. 2, 11, Upper Miocene, (San Pablo), California.

Not *Murex packardi* DICKERSON, Proc. Calif. Acad. Sci., 4th Ser., Vol. 5, June 15, 1915, p. 69, pl. 9, figs. 6a, 6b, Upper Eocene, Cowlitz River, Vader, Washington.

Only a few weeks intervened between the duplication of the name *Murex packardi*, and the Miocene species, being the latest to appear, requires a new name; this has been supplied, as above, by Dr. Bruce L. Clark of the Department of Paleontology, University of California.

51. *Murex temalentus* Hanna, new name

Murex (Ocinebra) concinna NOMLAND, Univ. Calif. Publ. Geol., Vol. 10, No. 14, 1917, p. 236, pl. 12, figs. 6, 6a, Etchegoin Pliocene, California.

Not *Murex concinnus* REEVE, 1845, Conch., Icon. Sp. 104, pl. 25.—TRYON, Man. Conch., Vol. 2, 1880, p. 227.

The name of the Pliocene species of California is homonymous with a living form and therefore cannot be accepted, according to the rules of nomenclature.

52. *Mya inopia* Hanna, new name

Cryptomya ovalis CONRAD, Proc. Acad. Nat. Sci. Phila., Vol. 8, 1856, pp. 312-316.—CONRAD, Pac. R. R. Reports, Vol. 6, 1857, p. 69, 73, Monterey, California.—ARNOLD, Bull. U. S. Geol. Surv. 398, pl. 44, fig. 5.—ARNOLD, Bull. 396, U. S. Geol. Surv. 1909, pl. 22, fig. 5, cited from "Etchegoin," California.

- Mya (Cryptomya) ovalis* CONRAD, CLARK, Univ. Calif. Publ. Geol., Vol. 8, 1915, p. 479, pl. 60, figs. 3, 4, cited from San Pablo, Miocene, California.
Not *Mya ovalis* PULTENAY, Cat. Birds, Shells, etc., Dorsetshire, 1799, p. 27.
Not *Mya ovalis* RÖEMER, Nord. Oolith, [Verst. Norddent, Kreidegeb.] 1839, p. 42, pl. 19, fig. 28.
Not *Mya ovalis* MARTIN, see KONINCK, Desc. des Anim. Fossil, Belgique, 1844, (1841) p. 74, pl. H, fig. 2; which was a new name for *Unio uniformis* Sowerby, not Goldfuss.

It is unfortunate that so well known a fossil as this should require a new name because of its prior use in an ancient, obscure publication; but no other course appears possible if the rules of nomenclature are to be adhered to. In the references to Röemer and Koninck the bracketed matter is taken from Sherborn, Index Animalium, 1922. It also appears that Sowerby named a species "*Mya ovalis* prior to the use of the name by Conrad.

53. "*Natica andersoni*" Clark

- Natica (Neverita) recluziana andersoni* CLARK, Univ. Calif. Publ. Geol., Vol. 11, 1918, p. 168, pl. 20, figs. 3, 10, 11, 12, San Lorenzo, Oligocene California.
Not *Natica anderssoni* STREBEL, Zool. Jahr. Syst., Vol. 24, 1906, p. 142, Magalhaen.

The case of this subspecies is similar to *Siphonalia clarki* Dickerson. It is my belief that the differences of spelling are sufficient to warrant their retention, although cases of replacement for less substantial reasons might be cited.

54. *Natica fiasco* Hanna, new name

- Neverita globosa* GABB, Geol. Surv. Calif. Pal., Vol. 2, 1869, p. 161, pl. 27, fig. 39, Eocene near New Idria, California.
Not *Natica globosa* KING, Zool. Journ., Vol. 5, 1830-1831, p. 344, Straits of Magellan, living; Tryon stated this is *N. patagonica* Philippi.
Not *Natica globosa* JEFFREYS, Proc. Zool. Soc. London, 1885, p. 33, "Morocco and Cape Verde Islands."

Gabb's species questionably belongs to the sub-group *Neverita*, which even modern conchologists fail to raise to higher rank than a sub-genus. The only safe procedure under such circumstances is to leave the species in *Natica*. Attempts to place fossil species in a classification based upon

living forms can be carried so far as to produce endless confusion. In this case the western fossil has a name pre-occupied twice in Natica. It therefore cannot be transferred without a new name, but this seems the lesser of two evils.

55. *Odostomia andersoni* (Bartsch)

Odostomia (Evalea) andersoni BARTSCH, Proc. U. S. Nat. Mus., Vol. 52, 1917, p. 667.

Eulimella californica ANDERSON & MARTIN, Proc. Calif. Acad. of Sci., 4th Ser., Vol. 4, 1914, p. 67, pl. 7, figs. 19a, 19b, 19c, Lower Miocene, Kern River, California.

Not *Odostomia (Evalea) californica* DALL & BARTSCH, Bull. U. S. Nat. Mus., 68, 1909, p. 208, pl. 24, fig. 2, San Diego, California.

56. *Odostomia ochsneri* (Anderson & Martin)

Eulimella ochsneri ANDERSON & MARTIN, Proc. Calif. Acad. Sci., 4th Ser., Vol. 4, 1914, p. 66, pl. 7, figs. 23a, 23 b, Barkers Ranch, Kern County, California, Lower Miocene.

An examination of the cotypes, Nos. 138, 139 (C. A. S. Coll.) shows that this species belongs with *E. andersoni* in *Odostomia (Evalea)* as defined by Bartsch. The name therefore does not conflict with *Melanella ochsneri* Bartsch²¹ from the Galapagos Islands, as might be suspected from the original generic reference. The reference to the University of California as being the depository of the original material of *M. ochsneri* Bartsch is an error due to the transmission of wrong data with the collection by the person who then had the collection in charge. The material is a part of the collection made by the California Academy of Sciences Expedition to the Galapagos Islands in 1905-1906, and as received back at the Academy consists of 14 specimens of the species labelled "Banks Bay, Albemarle Island," and 17 specimens labelled "Tagus Cove, Albemarle Island." No designated type was received.

57. "*Ostrea corrugata*" Nomland

Ostrea titan corrugata NOMLAND, Univ. Calif. Publ. Geol., Vol. 10, 1917, p. 306, pl. 16, fig. 1, pl. 17, fig. 1, Santa Margarita Miocene near Coalinga, California.

²¹ U. S. Nat. Mus. Proc., Vol. 53, 1917, p. 305, pl. 35, fig. 1.

Not *Ostrea corrugata* BROCCHI, Conch. Fossil Subapennina, 1814, p. 670, pl. 16, figs. 14-15.

The name chosen by Nomland for the California fossil is an exact homonym and therefore unacceptable in accordance with the present rules of nomenclature. The subspecies is believed to be merely a variation of the protean *O. titan*, well worth recording as such, but scarcely deserving of a name.

58. "Pachymelania" White

Pachymelania WHITE, U. S. Geol. Surv. Bull. 128, 1895, p. 50; Type *P. cleburni*; four other species referred to genus.

Not *Pachymelania* E. A. SMITH, Conchologist, Vol. 2, 1893, pp. 141-142; new name to be applied to *Nerita aurita* Müller to replace *Claviger* Haldeman.

White's name is preoccupied by two years. In his description of it he stated that the group "differs from that genus [Goniobasis] in the moderate massiveness of the test and in a general habitus which is readily observable but difficultly describable." It would seem that when a group differs so little that the characters cannot be pointed out they are not worth considering in a scheme of nomenclature. Therefore I will not encumber literature with a new name.

Haldeman's *Claviger* has been a popular target for criticism. It is preoccupied by Preyssler, 1790 (in Coleoptera), and has been renamed at least three times. *Pachymelania* E. A. Smith, 1893; *Hemipirena*, Roverato, 1899; and *Clavigerina*, von Martens, 1903.

59. *Pecten binominatus* Hanna, new name

Pecten (*Pseudamusium*) *andersoni* DALL, Sci. Res. Canadian Arctic Exp. Vol. 8, 1918, Part A, p. 19a, pl. 2, figs. 7, 8, Dolphin and Union Strait, Arctic Ocean; (Reference from Dall, Bull. 112, U. S. Nat Mus. 1922.)

Not *Pecten* (*Plagiopecten*) *andersoni* ARNOLD, U. S. Geol. Surv. Prof. Paper 47, 1906, p. 82, pl. 26, figs. 5-8, Miocene, Zayante Creek, Santa Cruz County, California.

The name of the recently described living species from the Arctic Ocean conflicts with the well-known Miocene species of California; a new name is therefore required.

60. *Pecten calamitus* Hanna, new name

Pecten (*Propeamusium*) *laevis* MOODY, Univ. Calif. Publ. Geol., Vol. 10, 1916, p. 56, pl. 2, figs. 2a, 2b, 2c, 2d, Fernando Pliocene, Los Angeles, California.

Not *Ostrea laevis* MATON & RAKETT, Trans. Linn. Soc., Vol. 8, 1807, p. 100; this is *Pecten tigrinus* MÜLLER according to VON TEPPNER, Foss. Cat. pt. 15, 1922, p. 141.

Not *Pecten laevis* PORTEZ & MICHAUD, Gal. Moll. Mus. Donai, Vol. 1, 1838-1844, p. 81, pl. 50, fig. 4.

The spelling of the Pliocene California species is apparently an error in copying and should be corrected to *laevis*, which is correct. The previous use of the name forbids its application to the western shell.

61. "*Pecten clarkensis*" Hall & Ambrose

Pecten clarkensis HALL & AMBROSE, Nautilus, Vol. 30, 1916, p. 68, Horsetown Cretaceous near Milpitas, San Jose Quadrangle, California.

Not *Pecten clarkeanus* ALDRICH, Harris, Bull. Am. Paleo., No. 2, 1895, p. 68, pl. 5, fig. 11, Eocene, Alabama.

These two names are similar but seem sufficiently distinct to stand according to present rules. Anyway, it is doubtful if the Cretaceous fossil can ever be recognized unless the type specimen be found, because it has not been figured.

62. *Pecten diabloensis* Clark, new name

Pecten gabbi CLARK, Univ. Calif. Publ. Geol., Vol. 11, 1918, p. 131, pl. 15, figs. 1-2, Oligocene near Muir Station, Contra Costa County, California.

Not *Pecten gabbi* DALL, Trans. Wag. Free Inst. Sci., Vol. 3, pt. 4, 1898, p. 717, pl. 29, fig. 3, "Oligocene" of Antigua and San Domingo.

The name of the California species, according to the rules, must be replaced, and Professor Clark's attention having been called to it, he proposes to denote it as above in a forthcoming monograph of West American Oligocene Pelecypoda. The West Indian species was originally called *P. paranensis* by Gabb, but according to Dall is not d'Orbigny's species of that name.

63. *Pecten invalidus* Hanna, new name

Pecten (Plagiectenium) cooperi ARNOLD, Prof. Paper 47, U. S. Geol. Surv. 1906, p. 124, pl. 49, figs. 2-4, Pliocene, Pacific Beach, San Diego County, California.

Not *Pecten cooperi*, E. A. SMITH, Fauna and Geography of Maldive and Laccadive Archipelagos, Vol. 2, 1903, p. 621.

64. *Pecten impostor* Hanna, new name

Pecten proteus NOMLAND, Univ. Calif. Publ. Geol., Vol. 10, 1917, p. 232, pl. 6, figs. 2, 2a, 2b, 2c, Etchegoin Pliocene, California.

Not *Pecten proteus* SOWERBY, Thes. Conch., 1847, p. 59, pl. 13, figs. 53, 54.
Four other references are given to the name by Von Teppner in C. Diener, Foss. Catalogue, Pars 15, p. 197, 1922.

Nomland's name is an exact homonym of the well-known species of Sowerby. The other references given by C. Diener have not been checked. There is also a *Pecten protei* Munster²² (cited by d'Orbigny in his Prodrôme) which would probably throw out even Sowerby's name upon a strict application of the rules. Monterosato²³ proposed the genus name "Proteopecten" for some species named "*Pecten proteus*" but not the one of Moody.

65. *Periploma binominata* Hanna, new name

Periploma undulata CLARK, Univ. Calif. Publ. Geol., Vol. 11, 1918, p. 136, pl. 15, figs. 3, 4, Oligocene, Contra Costa County, California.

Not *Periploma undulata* VERRILL, Trans. Conn. Acad. Sci., Vol. 6, 1885, p. 433, off coast of New England, living.

The name which was bestowed on the California fossil is unfortunately preoccupied for a living species of the east coast of the United States, and in the absence of Professor Clark, the above is proposed as a substitute.

66. *Pitaria ? prænominata* Hanna, new name

Meretrix dalli DICKERSON, Univ. Calif. Publ. Geol., Vol. 8, 1914, p. 135, pl. 11, figs. 2a, 2b, Martinez Eocene, California.

Not *Meretrix dalli* COSSMANN, Notes Compl. 1894, p. 10, pl. 1, figs. 9, 10; vide DALL, Trans. Wag. Free Inst. Sci., Vol. 3, pt. 6, 1903, p. 1239.

²² Beitrag. 1841, Vol. 4, p. 72, pl. 7, fig. 6.

²³ Journ. Conch., Vol. 47, 1899, p. 187.

Harris²⁴ as well as Dall placed Cossmann's species in the synonymy of "*Grateloupia (Cytheriopsis) hydana* Conrad," but the former cited the reference as "Cossmann, Notes Comp. 1893, p. 11, pl. 1, figs. 9, 10." I have not checked it to ascertain who is correct.

Unfortunately Dickerson called one of the "zones" of the Martinez the "*Meretrix dalli* zone," but since the species name is an exact homonym it must be discarded.

The hinge of Dickerson's Martinez species has not been described and from the figures it appears that the type material is too poorly preserved for such a study; therefore the proper generic reference cannot be ascertained. But since in shape it resembles somewhat *Pitaria californiana* (Conrad) of the Type Tejon Eocene it would seem best to place the species temporarily in that genus. Such procedure will probably not interfere with Weaver's *Pitaria dalli* of 1916.²⁵

67. *Proceratites* Kittl

Proceratites KITTL, Abhandl. K.-K.-Geol. Reichsanstalt, Wien, Vol. 20, 1903, p. 28; type, "*Ceratites plicatus*" Waagen.

Xenaspis WAAGEN, Mem. Geol. Surv. India, Pal., India, Ser. 13, Salt Range Fossils, Vol. 2, 1895, p. 161.—HYATT & SMITH, U. S. Geol. Surv. Prof. Pap. 40, 1905, p. 115. Type species *Xenodiscus plicatus* Waagen.

Not *Xenaspis*, OSTEN-SACKEN, Bull. Soc. Entomology, France, Ser. 6, Vol. 1, 1881; insects.

The name *Xenaspis* cannot be used for the group of Cephalopoda as Waagen proposed but it appears that *Proceratites* of Kittl can replace it since the type species is the same.

68. *Pyramidella* (?) *præcursor* Hanna, new name

Eulima smithi VAN WINKLE, Univ. Wash. Publ. Geol., Vol. 1, No. 2, 1918, p. 85, pl. 7, fig. 22, Lower Oligocene, Greece Ranch, near Vader, Lewis County, Washington.

Not *Eulima smithi* REAGAN, Trans. Kans. Acad. Sci., Vol. 22, 1909, p. 223, pl. 6, fig. 61.

Not *Turbonilla smithii* VERRILL, Proc U. S. Nat. Mus., Vol. 3, 1880, p. 380, east coast of North America, living.

²⁴ Bull. 31, Amer. Paleo. 1919, p. 152.

²⁵ Univ. Wash. Publ. Geol., Vol. 1, No. 1, 1916, p. 41.

Verrill,²⁶ two years after describing his species, placed it in the genus *Eulimella*. It belongs to the same genus as the fossil described by Reagan in 1909 from the Quillayute formation (Miocene?) of Washington. In working over his types, deposited in the U. S. National Museum, Dall²⁷ has stated that the Washington form is not distinct from "*Eulima washingtoni*," described by Reagan at the same time and that they probably belong to the genus "*Strombiformis*." The difference in the shape of the whorls in *E. smithi* Reagan is due to decortication; a new name for it is, therefore, not required.

Van Winkle's Washington fossil is unrecognizable from the figure and if the description is correct in regard to the presence of a canal it does not belong near the group formerly called *Eulima* or *Eulimella*, now *Melanella*, but may be *Pyramidella*, although no mention was made of plications. The specimen seemed to be well preserved and the species can probably be recognized when further collections from the same locality are studied.

69. *Rimetella* Hanna, new name

Ectinochilus COSSMANN, Cat. Coqu. Foss. Eocene Paris, Vol. 4, 1889, p. 91; new section of *Rimella* Agassiz; type species *Strombus canalis* Lamarck. Not *Ectinochila* CHAUDOIR, Coleoptera Nov., Vol. 1, 1883, p. 21; type species *E. tessellata* Chaudoir, new species.

According to modern methods of generic subdivision it appears certain that sooner or later the West American species formerly referred to *Rimella* Agassiz will be assigned to different groups and some of them will almost certainly fall in that which Cossmann named *Ectinochilus* with *Strombus canalis* Lamarck as type.^{27a} But Cossmann's name is preoccupied in Insecta by *Ectinochila*, a name which differs only in generic ending. Taxonomists generally have considered such differences in endings as insufficient and have replaced the latest one to be used. No better illustration

²⁶ Trans. Conn. Acad. Sci., Vol. 5, 1882, p. 538, pl. 58, fig. 18.

²⁷ Amer. Journ. Sci., Vol. 4, 5th series, No. 22, October 1922, pp. 305-314.

^{27a} Since this was written Clark & Palmer (Univ. Calif. Publ. Geol., Vol. 14, 1923, p. 279) have included three west American species in *Ectinochilus* Cossmann.

of the need of such action comes to mind than the present case. If Cossmann's name be used as a subgenus and a West American species be referred to the combination, *Rimella* (*Ectinochilus*) *canalifera* would result; to make the names agree in gender would necessitate changing *Ectinochilus* to *Ectinochila*, an absolute replica of Chaudoir's name. If the genus and species must agree in gender, as the rules demand, the subgenus must necessarily agree also, it would seem, and taxonomists have generally assumed that this is true. The question of the usefulness of a polynomial nomenclature involving subgenera, subspecies and other subdivisions need not be discussed in this connection.

The type species of the new name, *Rimetella*, will be *Strombus canalis* Lamarck.

70. "*Siphonalia clarki*" Dickerson

Siphonalia clarki DICKERSON, Proc. Calif. Acad. Sci., 4th Ser., Vol. 4, 1914, p. 121, pl. 11, figs. 4a, 4b, Eocene, Roseburg Quadrangle, Oregon.

Not *Siphonalia clarkei*, WOODS, Proc. Roy. Soc. Tasmania, 1875, p. 138.

The difference in spelling of the two above names is so slight that some persons might replace the latest one on the grounds of homonymy. But it seems to me that it should stand although the similarity is confusing. Obviously the species were named for different persons.

71. *Smithoceras* Hanna, new name

Polycyclus, MOJSISOVICS, Verhandl. K.-K. Geol. Reichsanstalt, Wein 1889, p. 281. Type *Ammonites nasturtium* Dittmar. HYATT & SMITH, U. S. Geol. Surv. Prof. Ppr. 40, 1905, p. 201.

Not *Polycyclus* LAMARCK, 1815, Mollusca and Polyzoa, vide Agassiz, Nomenclator Zoologicus, and Scudder, Nomenclator Zoologicus, U. S. Nat. Mus. Bull. 22, 1882, p. 257.

A species belonging to the above group from Upper Triassic of Shasta County, California, was named *nodifer* by Hyatt & Smith. But *Polycyclus* was otherwise used by Lamarck and it is proposed that *Smithoceras* be used for the Triassic fossils with *Ammonites nasturtium* Dittmar as type.

72. *Spondylus fucatus* Hanna, new name

Spondylus striatus PACKARD, Univ. Calif. Publ. Geol., Vol. 13, 1922, p. 422, pl. 29, Cretaceous, Santa Ana Mountains, California.

Not *Spondylus striatus* K. SCHREIBERS, Vers. Conch., Vol. 2, 1793, p. 158.

Not *Spondylus striatus* GOLDFUSS, 1832 (Petref. German. 3 Vols. 1826-1844), cited by d'Orbigny, Paleo. France, Vol. 3, p. 660, pl. 453.

Packard's name is a homonym and must be replaced to accord with present rules of nomenclature.

73. *Surcula binotata* Hanna, new name

Turris plicata WARING, Proc. Calif. Acad. Sci., 4th Ser., Vol. 7, 1917, p. 68, pl. 9, fig. 3, Cretaceous, Simi Hills, Los Angeles County, California.

Not *Pleurotoma plicata* GRATELOUP, Conch. Foss. Terr. Tert. Adour. 1847, pl. 2, n. 20, fig. 36; vide Tryon, Man. Conch. Vol. 6.

Not *Pleurotoma plicata* LAMARCK, Mem. Foss. Env. Paris, Deshayes edition Vol. 2, 1824, p. 448, pl. 66, figs. 14-16, Eocene of France.

Dall²⁸ referred to a *Pleurotoma plicata* of Lamarck and also of C. B. Adams but no attempt has been made to trace the references further than the above. That Waring's species belongs to the same genus as Lamarck's fossil from France is apparent upon a comparison of the figures. This makes a new name for the Cretaceous form necessary.

74. *Surcula hobsoni* Hanna, new name

Pleurotoma (*Drillia*) *dalli* TOULA, Jahrbuch der Kaiserlich-Königlichen Geologischen Reichsanstalt, Vol. 61, 1911, p. 506, pl. 30, fig. 12, Isthmus of Panama, (Miocene).

Not *Pleurotoma* (*Clathurella*, *Glyphostoma*,) *dalli* BÖSE & TOULA, 1910; see p. —.

Not *Pleurotoma* (*Borsonia*) *dalli* ARNOLD, 1903; see p. —.

Not *Pleurotoma dalli* VERRILL & SMITH, Trans. Conn. Acad. Sci., Vol. 5, 1882, p. 451, pl. 57, figs. 6, 6a, East Coast of North America, living.

The name of the Panama fossil is at least thrice preoccupied. Western paleontologists are now using Gatun species for correlation in that general region of both North and South America, and the species is therefore renamed to make it available for their use.

²⁸ Trans. Wagner Free Inst. Sci., Vol. 3, pt. 1, p. 41.

The species name is chosen in honor of Mr. Joseph W. Hobson, Recording Secretary of the California Academy of Sciences.

75. *Surcula evermanni* Hanna, new name

Turris pulchra DICKERSON, Proc. Calif. Acad. Sci., 4th Ser., Vol. 5, 1915, p. 71, pl. 10, figs. 4a, 4b, Upper Eocene, Cowlitz River, near Vader, Washington.

Not *Pleurotoma pulchra* "GRAY M. S.," Reeve Conch. Icon. Vol. 1, 1843, sp. 351, pl. 38, and of other authors.

Not *Turris pulchra* "BOLTEN," ROEDING Mus. Boltenianum (2) 1798, p. 123.

Dickerson's name must be replaced because of a prior *Turris pulchra* of Bolten and the Washington species is probably congeneric with the species usually called *Pleurotoma pulchra* Gray.

The new name is in honor of Dr. Barton Warren Evermann, Director of the California Academy of Sciences.

76. *Surcula polyappellatia* Hanna, new name

Drillia ornata DICKERSON, Proc. Calif. Acad. Sci., 4th Ser., Vol. 5, 1915, p. 71, pl. 10, fig. 3, Upper Eocene of Cowlitz River, southern Washington.

Not *Pleurotoma ornata* HINDS, Voy. Sulphur, Zool., 1844-45, p. 25, pl. 7, fig. 21.

Not *Pleurotoma ornata* D'ORBIGNY, Ramon de la Sagra's Cuba, Vol. 2, 1839-1845, p. 171, pl. 23, figs. 26-28, which Tryon (Man. Conch. Vol. 6, p. 362,) placed in *Drillia*.

Not *Pleurotoma ornata* DE FRANCE, Grateloup, *Pleurotoma*, 1847, pl. 3, m. 21, fig. 27, pl. 2, fig. 63.

The above are not the only instances of the use of the name *ornata* for closely related turrids. But a comparison of these shows that some at least are congeneric and the later names must be replaced. It is not believed that the generic nomenclature of the family has yet been stabilized in spite of recent revisions; therefore, use is made of the name *Surcula* since it is familiar to western paleontologists. It seems that *Turricula* may be applied to many of the species heretofore referred variously to *Drillia*, *Surcula*, *Turris*, and *Pleurotoma*, although that name was long used in *Mitridæ*.

77. *Phos dumbleana* Anderson, new name

Pleurotoma (*Clathurella*) *dumblei* ANDERSON, Proc. Calif. Acad. Sci., 3rd Ser., Vol. 2, 1905, p. 204, pl. 15, figs. 60, 61, Lower Miocene, Kern River, Kern County, California.

Not *Pleurotoma* (*Drillia*) *dumblei* HARRIS, Proc. Acad. Nat. Sci. Phila., 1895, p. 59, pl. 5, fig. 2, Eocene, Smithville, Texas. Casey (Trans. St. Louis Acad. Sci. Vol. 14, 1904, p. 154) has placed this species in his genus *Surculoma*.

"The name of the well-known California fossil is unfortunately a homonym and must be replaced according to the accepted rules of nomenclature. A re-examination of the type specimen shows that it belongs to the genus *Phos* as now recognized."—F. M. A.

78. *Tellina insurana* Hanna, new name

Tellina tenuistriata DAVIS, Journal of Geology, Chicago, Vol. 21, 1913, p. 457, Jurassic, California.

Not *Tellina tenuistria* [or *tenuistriata*] DESHAYES, Coq. Foss. Paris, Vol. 1, 1824, p. 80, pl. 11, figs. 9, 10.

Not *Amphidesma tenuistriata* [or *tenuistria*] SOWERBY in Fitton, Trans. Geol. Soc. London, 1836, p. 239, pl. 16, fig. 7.

Cossmann & Pissaro²⁹ refer to Deshayes' name as "*tenuistriata*," although Newton³⁰ has it "*tenuistria*." d'Orbigny in 1847 renamed Sowerby's species "*sub-tennistriata*" because of Deshayes' previous name, but Cossmann & Pissaro spell it "*subtenuistria*." Original sources need to be consulted to determine which is correct. Under any circumstances the California fossil requires a different name.

79. "*Tritonium eocenicum*" Weaver

Tritonium eocenicum WEAVER, Univ. Calif. Publ. Geol., Vol. 4, Martinez Eocene of California.

Not *Triton eocense* WHITFIELD, U. S. Geol. Surv. Mon. 18, pp. 192, 346, pl. 24, figs. 4, 5, Eocene, Green Marls, New Jersey.

A strict application of the rules would probably require replacement of the name "*Tritonium eocenicum*," or at

²⁹ Icon. Com. Foss. Eoc. Paris, Vol. 1, 1904-1906, p. 12, pl. 7.

³⁰ Brit. Olig. and Eoc. Moll. Cat. Brit. Mus. 1891, p. 75.

least a correct rendering of the specific name to possibly "*eocenicense*." But before doing so it would be well to determine that it is a recognizable species, a matter in which the present writer has some doubt. It was not fully described or well figured.

80. "*Turris coli*" Dall

Turris coli DALL, Prof. Pap. 59, U. S. Geol. Surv. 1909, p. 26, pl. 4, fig. 2, Miocene [Empire Pliocene] Coos Bay, Oregon.

Not *Pleurotoma colus* DRYARD, Mem. Geol. Soc. France, Vol. 2, 1837, p. 291, pl. 20, fig. 21.

The last cited publication has not been consulted, so it cannot be stated if these two species are congeneric or not. Future students of Oregon paleontology should determine this point and emend the nomenclature if necessary.

81. "*Turris packardi*" Weaver

Turris packardi WEAVER, Univ. Wash. Publ. Geol., Vol. 1, No. 1, 1916, p. 55, pl. 5, fig. 64, Oligocene, near Lincoln Creek Station, Washington.

Not *Pleurotoma packardii* VERRILL, Amer. Journ. Sci., Vol. 5, 1872, p. 15, pl. 29, fig. 59, East Coast of North America, living.

Under the current method of subdividing the groups of species in the Turridæ the above two probably would not fall into the same assemblage, but the necessary study has not been given to them to determine the matter finally. Attention is called to the names here in order that the next person who studies the Washington fauna may have the records readily accessible.

82. *Turritella polynominata* Hanna, new name

Turritella conica WEAVER, Univ. Calif. Publ. Geol., Vol. 4, 1905, p. 118, pl. 13, fig. 2, Martinez Eocene, California.

Not *Turritella conica* KLIPSTEIN, Beitrag Geol. Kenntu. oestl. Alpen, 1845, p. 173, pl. 11, fig. 6, which was renamed "*Cerithium subconica*" by d'Orbigny in 1874 because of a prior *Turritella conica* of Blainville in 1827 but of which the reference could not be completed.

Not *Turritella conica* SOWERBY in Murchison, Silurian Syst. 1839, pl. 3, figs. 7 and 8, Old Red Sandstone of England.

The name of the Martinez species is an exact homonym and according to the rules cannot stand.

83. *Turritella socordia* Hanna, new name

Turritella tricarinata BURWASH, Pros. & Trans. Roy. Soc. Canada, Vol. 7, 1914, Sec. 4, p. 81, Cretaceous, Queen Charlotte Islands, B. C.

Not *Turritella tricarinata* KING, Zool. Journ., Vol. 5, 1830-1831, p. 346, Valparaiso, Chile, living.

The specimen figured by Burwash is rather poorly preserved and perhaps might have been left unnamed, but I do not feel competent to judge of this matter. It certainly cannot stand under *tricarinata* according to the rules of nomenclature and it would seem best to rename it under the circumstances.

84. ? *Venus ensifera* Dall

Venus ensifera DALL, U. S. Geol. Surv. Prof. Pap. 59, 1909, p. 122, new name for

Venus lamellifera CONRAD, Geol. U. S. Exp. Exp. 1849, App. 1, p. 724, pl. 17, figs. 12, 12a, Miocene, Astoria, Oregon.

Not *Venus lamellifera* CONRAD, Journ. Acad. Nat. Sci. Phila., Vol. 7, 1837, p. 251, pl. 19, fig. 19, Coast of California, which Dall (Bull. 112, U. S. Nat. Mus. 1921, p. 44) placed in *Venerupis*.

Not *Venus lamellifera*, Proc. Zool. Soc. London, 1856, p. 214.

85. *Yoldia (portlandia) astoriana* Henderson

Yoldia (Portlandia) astoriana HENDERSON, Nautilus, Vol. 33, 1920, p. 122, new name for

Nucula impressa CONRAD, Geol. U. S. Exp. Exp. 1849, p. 723, pl. 18, fig. 7, Astoria, Oregon, Miocene.

Not *Nucula impressa* (?) HALL, in Fremont Rept. Exp. Exped. to Rocky Mts. Oregon and Calif. U. S. Senate Doc. 174, 28th Cong., 2nd Sess. (Corresponding House Doc. 166) 1845, p. 308, pl. 3, fig. 3.

Not *Nucula impressa* SOWERBY, Mineral Conchology, Vol. V, 1825, p. 118, pl. 475, fig. 3.

Yoldia (Portlandia) impressa CONRAD, Dall, U. S. Geol. Surv. Prof. Pap. 59, 1909, pp. 105, 154.

Attention is called to the fact that Henderson has renamed Conrad's Oregon species because it is likely to be overlooked. At the same time he renamed Hall's "*Nucula impressa*" as *Yoldia fremonti*." d'Orbigny also has a *Nucula impressa* dating from 1843 which he renamed *N. cornueliana* in 1847.

Howe's new name, "*Leda subimpressa*"³¹ referred questionably to Dall's interpretation³² of *Yoldia impressa* Conrad may possibly be a synonym of *Yoldia astoriana* Henderson.

³¹ Howe, Univ. Calif. Publ. Geol., Vol. 14, 1922, p. 97.

³² U. S. Geol. Surv. Prof. Pap. 59, 1909, p. 105.



Hanna, G Dallas. 1924. "Rectifications of nomenclature." *Proceedings of the California Academy of Sciences*, 4th series 13, 151–186.

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