

The zoological career of Jesse Walter Fewkes (1850–1930)

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ABSTRACT: This article examines the life and zoological research of Jesse Walter Fewkes of the United States, whose later career as a pioneer in cultural anthropology overshadowed his significant earlier contributions to zoology. The primary focus of his zoological work was on planktonic Cnidaria, especially the Siphonophora. He also carried out detailed investigations on larval development of echinoderms and worms. A bibliography of Fewkes's publications in natural history and a list of the nominal taxa he established reflect the scope of his contributions.

KEY WORDS: biography – zoology – Cnidaria – Echinodermata – larval development – Alexander Agassiz – Museum of Comparative Zoology.

INTRODUCTION

Although more widely known and acclaimed for his work in anthropology, Jesse Walter Fewkes first made his mark in zoology. His studies of marine invertebrates, especially cnidarians, earned for him a place among the more productive of nineteenth-century American taxonomists. Invariably, however, biographical sketches of Fewkes focus on his second career and offer only a glimpse of his achievements in biology (Anonymous 1916, 1930a, 1930b; Glenn 1999; Hough 1931, 1933a, 1933b; Nichols 1919: 1).

The only child of Jesse Fewkes and his first wife Susan Emeline Jewett, Jesse Walter was born in Newton, Massachusetts, on 14 November 1850. Walter graduated from Newton High School, but did not enter college until the age of 21¹ (Anonymous 1916: 32; Nichols 1919: 1; Hough 1933b: 261). He enrolled at Harvard University in 1871, intending to become a physicist. During the summer of 1873, however, he chose to study at Louis Agassiz's seaside laboratory, the Anderson School of Natural History, located on Penikese Island, Massachusetts (Nichols 1919: 1; Lillie 1944: 198). His interest in zoology had been sparked early in 1868 when he attended a series of ten lectures on natural history presented by Dr Samuel Kneeland, an accomplished professor of zoology at the Massachusetts Institute of Technology. Fewkes later said that those lectures, sponsored by the Lowell Free Course of Instruction (Anonymous 1867, 1875; Smith 1898: 42–44)², had “in part turned my thoughts to natural history studies, and did much to keep alive and increase . . . [my] interest in studies of nature” (Anonymous 1890: 40–41). In any case, the experience at the Penikese laboratory proved to be fortuitous, for young Fewkes came to view natural history as an appealing career. His interest in physics continued for a while, however, and the first three

articles he published (Fewkes 1874a, 1874b, 1874c) dealt with the subject of electricity. Moreover, in 1875, during his senior year, he won a prize for his essay "A connection of the physical sciences" (Fewkes 1874a, 1874b; Anonymous 1907; Hough 1931: 352, 1933b: 26). Whether Fewkes had developed an interest in marine invertebrates prior to his experience at the Penikese laboratory in 1873 is uncertain, but a lecture he gave later (1880) suggests that he was already fascinated by jellyfishes and siphonophores (Appendix 1, 10: 4–5).

TRAINING IN ZOOLOGY

Fewkes intended to study with Louis Agassiz after his experience at Penikese Island, but did not get to do so, for Agassiz was, as usual, busy with many projects in the fall of 1873, and, though generally unknown then, in failing health. Agassiz died on 14 December 1873 (Lurie 1960: 330–339). Fewkes did not falter in his resolve to study zoology and to focus on the group then known as radiates, which included echinoderms as well as coelenterates. Aware that other faculty could direct his studies and that Harvard's Museum of Comparative Zoology (MCZ) was a storehouse of specimens, he soon learned that John McCrady, an assistant curator brought to the MCZ by Agassiz only a few months earlier, was to be appointed as the professor of zoology. McCrady was widely recognized as an authority on coelenterates. Fewkes soon became one of the "special students" of McCrady, that is, a student who did independent study under the direction of a faculty member³ (Stephens 2000: 146–164; Stephens and Calder 1992: 39–54).

A native of Charleston, South Carolina, McCrady had studied with Agassiz at various times between 1852 and 1855, and published excellent articles on hydrozoans before the American Civil War of 1861–1865. Faring poorly after the war and barely eking out a living for his family, he had been unable to continue his research. Louis Agassiz recognized the ability of McCrady, and brought him to the MCZ in 1873, luring him in part with a vague and unwritten promise that he would be his successor as director of the MCZ (Winsor 1991: 171–172; Stephens 2000: 237–238). McCrady soon ran into problems with his junior and senior classes in zoology because of his overly specialized lectures, but was generally more successful with his special students, with whom he took "endless pains"⁴ (Stephens 2000: 239–54).

Older than most of the undergraduate students in Harvard's natural history program, Fewkes (Figure 1), a handsome man with "twinkling" blue eyes and "sandy to reddish hair and beard" (Judd 1967: 28), possessed a notably friendly disposition and a propensity for trying to settle disputes by conciliation (Judd 1967: 28–29). He got along well with McCrady, and recognized the value of working with a pioneer in cnidarian studies. After receiving his bachelor's degree with honours in 1875, Fewkes entered the doctoral program in zoology, and continued to work with McCrady.⁵ When the President of Harvard University, Charles Eliot, opted not to renew McCrady's appointment in 1877, Fewkes offered to try to persuade Eliot to change his mind, but McCrady declined to allow him to make an appeal.⁶

McCrady left Harvard University for a position at the University of the South, Sewanee, Tennessee, but not before taking part in Fewkes's oral examination for the doctoral degree in May 1877.⁷ Shortly afterward, Fewkes received his doctorate (Anonymous 1876: 144, 1888a: 26–27, 1937a). By then, he was an active member of the Boston Society

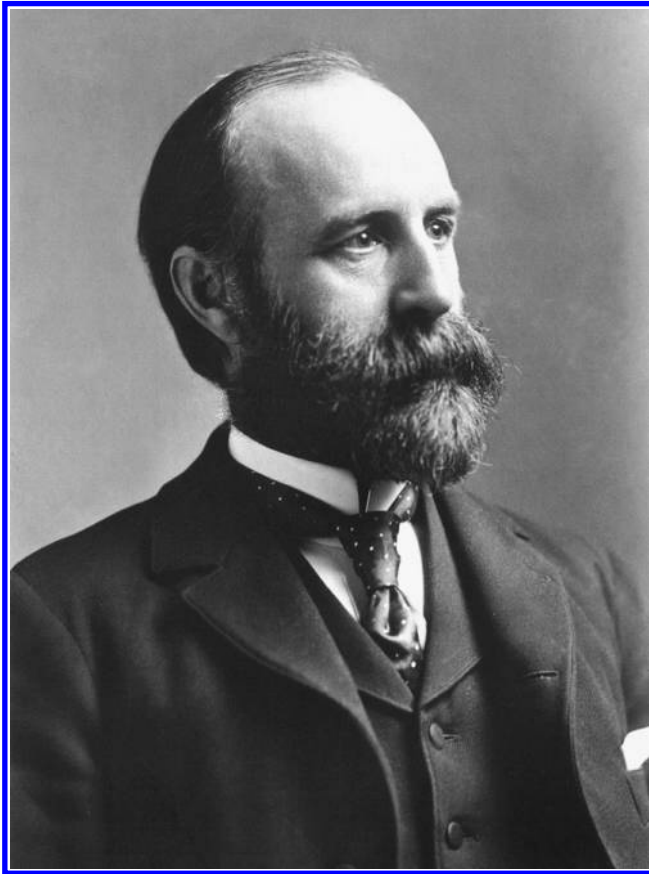


Figure 1. Jesse Walter Fewkes (1850–1930), by courtesy of Smithsonian Institution Archives (SIA, Record Unit 95, image # 23585).

of Natural History⁸ and had published the three articles on electricity and another one (1) on the musculature of the short-beaked echidna from Australia, *Tachyglossus hystrix* (= *T. aculeatus*). This thorough paper on the echidna reflects Fewkes's wide-ranging interests and ability, and the superb figures he drew for it show his excellent artistic talent (1).

Fewkes was set on further study of radiates, and he hoped to go to Europe for that purpose. As early as January 1877, he had inquired about the possibility of study at Anton Dohrn's noted marine laboratory in Naples, Italy.⁹ During the months between receiving his doctorate and the trip to Europe in 1878, he wrote a paper titled "Comparison of the fore and hind limbs in vertebrates". An informed treatise in comparative zoology and homology, it reflected familiarity with vertebrate limb structure, and included a caution against going too far in relying on "remote likenesses" in anatomical studies. The paper won the Bowdoin Prize of \$100.¹⁰ Also in 1878, Fewkes received Harvard's Harris Fellowship, which enabled him to make the journey to Europe. That fellowship was awarded for "acknowledged excellence" in his field (Anonymous 1907: 43).

According to a statement by Fewkes (Anonymous 1888a: 26), he worked briefly in Leipzig with the great German zoologist Rudolf Leuckart, and then spent several months in the winter and spring of 1878–1879 at the Naples Zoological Station and on the south coast of France at the laboratory in Villefranche-sur-Mer (Anonymous 1888a: 26; Nichols 1919: 1). He was assisted by his former undergraduate classmate Augustus Hemenway Jr., the son of a wealthy Boston entrepreneur, who arranged through a London bank to issue a letter of credit to Fewkes in the amount of a gift of £100.¹¹ Hemenway and his mother Mary, celebrated philanthropists, would later play a much larger role in Fewkes's career.

AFFILIATION WITH THE MUSEUM OF COMPARATIVE ZOOLOGY

Already known to Alexander Agassiz, who had succeeded his father as director of the MCZ, Fewkes became a highly promising prospect for a position in the Museum and for running the summer program of the marine laboratory established by Agassiz at Newport, Rhode Island, in 1875. Late in 1879, Fewkes accepted Agassiz's offer of appointment as "Assistant in Charge of Radiates", and, in 1884, in his words (Anonymous 1888a: 26), "advanced a step" to "Assistant in Charge of Invertebrates" in the Newport laboratory (Anonymous 1937b). Like his father, Alexander Agassiz kept his subordinates under a heavy hand, in part by using the title of "assistant", even for recipients of the doctoral degree and irrespective of talent and experience. He also tended to refer to these assistants, including Fewkes, as his "students". The authoritarian manner exhibited by the younger Agassiz never waned (see Winsor 1991: 207–212, and Stephens and Calder 2006: 4–25).

Enthusiastic about the study of marine invertebrates and elated over appointment to the MCZ staff, Fewkes set himself to the task of carrying out his curatorial and collecting duties and to doing research, especially on cnidarians and echinoderms. Indeed, within four years after his appointment, he had managed to publish 40 articles, many of which dealt with siphonophores and jellyfishes (Appendix 1). Moreover, from 1884 to 1889, he wrote more than 50 additional contributions. Although many of these represented cnidarian studies, some were 'popular' pieces, a kind of writing that appealed to Fewkes. Among the best and fullest of his popular publications were the entries on "Coelenterata" for the first volume of *The standard natural history* (33–38). Meanwhile, in the "Winter of 1880", he presented "four lectures before the Essex Institute", and, "in 1885–86 . . . gave a course of lectures, about thirty in number, on New England Zoology" at the Newport laboratory (Anonymous 1875: 26–27).

Agassiz sent Fewkes to a considerable number of localities to collect for the MCZ, including Eastport and Grand Manan on the northeast coast of North America and to Key West and the Dry Tortugas in the Gulf of Mexico. With Agassiz he collected medusae in the Tortugas in 1881. In the spring of 1883, Fewkes went to Bermuda "for scientific exploration" (Anonymous 1888a; Nichols 1919: 1). In addition, from 1884–1887, while involved in the summer program at Agassiz's Newport laboratory, he collected numerous specimens. In the meantime, Fewkes completed studies of many specimens of medusae and echinoderms collected by others and sent to him by Richard Rathbun of the Smithsonian Institution and by the prodigious taxonomist A. E. Verrill, of Yale University.¹²

Also knowledgeable in geology, Fewkes published papers on the physical origin of the Bermudas (**63**, **86**), which indicate his familiarity with the theories of subsidence and erosion.

On 8 October 1883, Fewkes married Florence Eastman. No children were born of this marriage, and Florence died on 3 May 1888¹ (Hough 1933b: 267; Darnell and Gleach 2002: 20).

STUDIES IN CALIFORNIA AND FRANCE

In early January 1887, Hemenway invited Fewkes to accompany him on a three-month sojourn to the southern coast of California. Both Hemenway and his mother, who was leading an effort to document the cultures of North American Indian groups, hoped to get Fewkes involved in her project. Fewkes was free to pursue his work, and nothing in his California notebooks indicates that he was inclined at that point to abandon zoology and take up the study of southwestern tribes.¹³

Fewkes's record of the trip shows clearly that he was still devoted to marine zoology, and, along with publications that followed (**53**, **67**, **70**, **73–75**, **81**, **87**), it reveals that, from his arrival on the Pacific Coast on 13 February 1887 to his departure in late April, he collected numerous specimens and made detailed comments on collecting sites. Fewkes spent much of his time in Santa Barbara and on the nearby island of Santa Cruz, and also collected in Monterey Bay. In an article for the *American naturalist* (**53**), he said he was filled with “enthusiasm” over “the majority of the animals” he collected because he believed they were “new to science”. Indeed, Fewkes made a strong case for establishing marine laboratories on the southern coast of California, naming in particular Santa Barbara, Monterey Bay, and San Diego as ideal locations (**53**). In addition, he criticized contemporary efforts to downplay taxonomic studies, which had been growing apace since the founding of the Johns Hopkins University and its program in “modern biology” in 1878 (**53**, **73**, **74**). He soon published articles in the *American naturalist* on his adventures in California (**73**, **74**), touting the beauty of the land, flora, and waters of the area (**87**) and speaking of the great promise for the discovery of new species on the Pacific coast.¹⁴ He did not neglect his scientific work, however, describing a new bryozoan (**67**), a new siphonophore (**70**), several medusae (**75**), and various other invertebrates (**81**).

Soon after the death of his wife on 3 May 1888, Fewkes decided to go abroad again, and by late July 1888, he was in Paris. There he met Félix Joseph Henri de Lacaze-Duthiers, director of the biological laboratory at Roscoff, on the northern coast of Brittany. Lacaze-Duthiers invited Fewkes to conduct a study of an echinoderm species at his laboratory, and, on 30 July, Fewkes arrived at Roscoff, where he remained until around 25 August.¹⁵ He wrote to Agassiz on 1 August, informing him of his location, the work he was undertaking, his plan to visit “other marine laboratories”, and his intention to return to the MCZ in September¹⁶ (Nichols 1919: 1).

Fewkes recorded in a notebook that he was surprised to find that Roscoff researchers made “no study of pelagic fauna”.¹⁵ Commenting further on this lack of interest, he said they “never watch the sea as carefully as necessary” for jellyfishes, which, he added, was a consequence of “collecting by proxy”.¹⁵ Fewkes also observed that the laboratory's library was “small”, containing “many works in French” and all of Charles Darwin's publications,

but only one American publication.¹⁵ In addition, he noted that “almost all the students . . . at Roscoff are at work on anatomy . . . [and] no one . . . on Embryology”.¹⁵ Fewkes was impressed by the Roscoff facilities, which he described in detail in both his notebooks and in an article, “A corner of Brittany” (69). Obviously delighted by the beauty of the area, he provided a glowing account of the region in his article, but his notebooks reveal less enthusiasm over the Roscoff laboratory, as he did not find the station especially compatible with his interests, excepting echinoderms.¹⁵ He moved on in late August to London, where he visited the British Museum (Natural History), after which he went to the Marine Laboratory in Plymouth. Fewkes made only brief notebook entries about them. He left for America some time after 18 September 1888.¹⁵

RUPTURE OF RELATIONSHIP WITH ALEXANDER AGASSIZ

Soon after resuming his work at the MCZ in the fall of 1888, Fewkes drafted at least half a dozen papers for publication. It appears, however, that his relationship with Alexander Agassiz had cooled considerably. Perhaps Fewkes had grown tired of serving for nine years as an assistant, with no evident prospect of promotion. After all, he held a PhD degree, had made many significant contributions to his field, and was 38 years old. Winsor (1991: 209) suggested that Agassiz may have come to question Fewkes’s contributions as a consequence of the British zoologist Philip Herbert Carpenter’s “low opinion of Fewkes’s writing”, even though the evidence runs contrary to Carpenter’s charge. Agassiz may also have been upset that Fewkes disagreed in print with some of his conclusions about echinoderm embryology (46: 105–106; 50: 143–144; 62: 19, 31). In any case, despite his professional standing, Fewkes realized that Agassiz continued to think of him as a student. He was not alone, for other able MCZ zoologists received no better treatment (Winsor 1991: 207–224).

Whether or not Fewkes had begun to search for another position, Agassiz believed “he had been offered employment elsewhere” (Winsor 1991: 209). To Agassiz, even an inquiry about another position by an employee of the MCZ was unacceptable. That attitude was recognized a decade later by another able “Assistant in Charge of Radiates”, Alfred Goldsborough Mayer (Stephens and Calder 2006: 4–23). In a letter dated 9 June 1889, Agassiz informed Fewkes that “your official connection with the Museum will cease on the first day of September”.¹⁷ He offered no reason for his decision, and concluded by saying, “I can only feel deeply that a connection which has existed for many years should be brought to so sudden a close”.¹⁷

Fewkes went to Grand Manan Island, in the Bay of Fundy, Canada, during the summer of 1889, and later wrote that the location “was exceptional in the variety of animals from southern waters” (88). He also began work on “An aid to a collector of the Coelenterata and Echinodermata of New England”, which would be a quasi-popular guide to “the identification of the adults and young of the more common” cnidarians and echinoderms inhabiting those waters (90, 91).

After his work at Grand Manan, Fewkes worked briefly in 1890 among Maine’s Passamaquoddy Indians, pioneering the use of the phonograph to record the language of the group. Between 1889 and 1891, he spent time in New Mexico studying Zuni and Hopi Indians. In 1891, Mary Hemenway appointed Fewkes as leader of the

Hemenway Southwestern Archaeological Expedition (Nichols 1919: 1–2; Hough 1933b: 263; Glenn 1999). With a new career now firmly set, Fewkes abandoned his work in marine zoology.

The transition seemed to be going smoothly until 10 September 1891, when Fewkes received a harsh letter from Agassiz regarding Fewkes's guide for collectors in New England waters, which had been issued only a few days earlier in the *Bulletin of the Essex Institute* (90). "I should like to know", demanded Agassiz, "by what right you have used figures copied from my *Sea Side Studies*".¹⁸ He accused Fewkes of "scientific dishonesty", and complained that his former "student" had compiled and published in the article a list of data gathered at the Newport laboratory while he was "a paid assistant" there. This, averred Agassiz, was a "breach [*sic*] of trust" that deserved "contempt".¹⁸ Agassiz also informed the Essex Institute of his displeasure over its publication of the article.¹⁹

Fewkes was no doubt stunned, but the charge of using Agassiz's figures without permission and attribution was valid. Fewkes immediately wrote to Agassiz, saying that he had inadvertently failed to cite *Sea side studies*. The omission, he stated, "was not intentional", and added, "I am certainly unconscious of having acted dishonestly in the matter".²⁰ Fewkes, who, as an acquaintance once said, "detested quarrels and argument" (Judd 1967: 29), sent Agassiz another letter the next day, stating, "I am wholly in the wrong in the matter of publishing your figures without asking your permission, and am ashamed of myself for the action".²¹ He offered to replace the figures, omit the list, and immediately direct the Essex Institute not only to stop delivery of any further copies of the *Bulletin* but also to recall those already distributed.²¹ Thomas F. Hunt, an Essex Institute official, told Agassiz that Fewkes "denies any malicious intent, saying it was thoughtlessness and forgetfulness on his part".²² Not satisfied, however, Agassiz wrote to Fewkes that it was not merely "a question of acknowledging the sources" but also a matter of using material from a "copyrighted" book.²³

Even if Fewkes committed the error unintentionally, he was nevertheless clearly at fault for using several figures from Agassiz's book without permission and without acknowledging the source. While drafting the article, he was, of course, busily trying to establish himself in a new field, presenting lectures and writing articles on ethnology, and was away at times on trips to the American West.²⁴ Still, he was "wholly in the wrong".²¹

Thomas F. Hunt, a member of the Essex Institute's publication committee, informed Agassiz that a recent issue of the *Boston herald* had noted the accusation²⁵, which probably added to Fewkes's embarrassment. Although Agassiz ultimately agreed to allow Fewkes and the Essex Institute to revise and reissue the publication, he was unrelenting toward Fewkes. The matter was "not encouraging ... [regarding] future dealings with students", said Agassiz, and once more he called Fewkes dishonest.²⁶ Abjectly, Fewkes said in his final letter to Agassiz that he had made a "great ... mistake", but once more denied any intention to misuse the Agassiz material. He ended this letter by writing in an underlined sentence, "My zoological career is ended and I shall never put pen to paper on a zoological topic again".²⁷

Fewkes eliminated the figures taken from *Sea side studies*, substituting many new ones he had drawn himself, as a comparison of the two versions shows (90, 91). He omitted the list of dates of collection of specimens that had irritated Agassiz. Even though Agassiz's anger over the list compiled by Fewkes was hardly justified, and even though Fewkes

had acknowledged that “these observations were made while [I was] connected with Mr. A. Agassiz’ Marine Laboratory” (90), Fewkes was in no position to argue. He eliminated the eight-page list. Fewkes also expanded the final note of acknowledgment in the revised issue (91).

The matter was costly, of course, both to Fewkes and the Essex Institute. Hunt had to deal carefully with Agassiz. On 8 March 1892, he sent “a proof” of the reprinted pages to Agassiz, expressing hope that he would find “nothing to which you can take exception”.²⁸ The altered version of “An aid” was issued in late April or early May 1892, a year after the date it bears.²⁹ It appears from the annual report of the Essex Institute in 1892 and from its commitment to publish another article by Fewkes that the organization held no ill will toward Fewkes. He had, of course, long been active in its work, publishing in its *Bulletin* and presenting lectures before its meetings. The Institute had elected him as a corresponding member in 1888 (Anonymous 1892).

The affair had an unhappy postscript, however, for the *American naturalist*, unaware of the charge by Agassiz and of the recall, had assigned the original article to a reviewer, and his comments appeared in the November 1891 issue of the journal. While the article was nicely written and illustrated, the reviewer criticized it rather severely, mainly because, in his view, the “arrangement of the divisions [that is, classifications] ... is hardly up to date, and in some cases it is open to serious criticism”. The critic concluded: “The lapses are too numerous for a man of Dr. Fewkes’s extensive knowledge” (Anonymous 1891). To some extent, the charge was justified, but the reviewer failed to recognize that the guide was intended more for amateurs than for professional biologists. It appears that Fewkes had given too little time to the article and that he, like Agassiz, was not keeping up-to-date in cnidarian systematics (Stephens and Calder 2006: 12–19).

END OF ZOOLOGICAL CAREER

Fewkes kept his promise never to work in zoology again, and the fields of descriptive taxonomy and invertebrate larval development lost an able contributor. A noted anthropologist who later met Fewkes said that Fewkes once told him that he left zoology because “only half a dozen people in the world would read his papers” (Lowie 1956: 1001). While his response was a simple way to explain why he left the field, Fewkes had by then come to believe that he was far more successful in his new profession than he had been in zoology. In fact, while he contributed significantly to his second field, he also left an indelible mark on his first.

On 14 April 1893, Fewkes married Harriet Olivia Cutler. He subsequently published scores of articles in anthropology, won several honours, and was elected a member of the National Academy of Sciences in 1914 for his work (Cochrane 1978: 618). On 31 May 1930, only a few weeks after the death of his wife, Fewkes died at his home in Forest Glen, Maryland. A funeral service in his home on 2 June was followed by interment in the Abbey Mausoleum in Arlington County, Virginia (Anonymous 1930a, 1930b; Swanton and Roberts 1931: 615).

CONTRIBUTIONS TO NATURAL HISTORY

Walter Fewkes's contributions to zoology merit recollection as clearly and fully as those in anthropology. Over a period from 1878 to 1892, Fewkes published 91 works in natural history³⁰, most of them studies of marine invertebrate animals (Appendix 1). Over half were on planktonic Cnidaria, especially the Siphonophora, although his siphonophore research in North America was overshadowed early in the twentieth century by the work of another student of Alexander Agassiz at Harvard University, Henry Bryant Bigelow (1879–1967). A second area of significant interest to Fewkes was the larval development of echinoderms (11, 31, 46, 50, 62, 72) and annelids (26, 30, 41, 60, 78). Hydroids were the primary focus of a report on cnidarians collected during dredging operations in the western North Atlantic by the Coast Survey Steamer *Blake* (9). He also provided accounts of other invertebrate groups including molluscs (18, 32, 65), nemertine worms (20, 23), ctenophores (36), bryozoans (67), crustaceans (65), and a number of parasitic taxa (15, 52, 66, 68). In addition, Fewkes was fascinated by the excavation of rock by sea urchins (79, 85, 89), and he described the unusual nature of the flora on one of the Channel Islands off Santa Barbara, California (87). While most of his field work was undertaken on the east coast of North America, his investigations in coastal California during the late 1880s earned for him recognition as a pioneer in marine zoology in that region.

The “Cited reference index” of “Web of science” lists 477 citations of Fewkes' publications between 1900 and 2009³¹, 322 in anthropology, 154 in zoology, and one in physics. Discoveries by Fewkes continue to have an impact in several academic disciplines. Since 2000, 147 citation records were reported, with 109 in anthropology, 37 in zoology, and one in physics. The four most cited Fewkes papers in zoology since 2000 were on hydroids and other coelenterates from the western North Atlantic (9: six times), medusae of Narragansett Bay (7: five times), development of worm larvae (26: five times), and new invertebrates from the coast of California (81: five times).

During the 1880s, Fewkes was the author of more than 100 nominal taxa of invertebrates³² (Appendix 2). Most of these were cnidarians (three families, 29 genera, 66 species), but also included were annelids (three species), bryozoans (one genus, one species), molluscs (one genus, one species), ascidians (one genus, one species), echinoderms (one family, one genus), and a nemertine worm (one species). Although his career in marine invertebrate zoology was brief, Fewkes is recognized as one of the leading specialists of medusozoan Cnidaria and of invertebrate larval development in the United States during the late nineteenth century.

Four species of invertebrates have been named in honour of Fewkes: *Chrysogorgia fewkesi* Verrill, 1883 (Anthozoa), *Vermicularia fewkesi* Yates, 1890 (Gastropoda), *Idotea fewkesi* Richardson, 1905 (Isopoda), and *Dodecaceria fewkesi* Berkeley and Berkeley, 1954 (Polychaeta).

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NOTES

¹ Fewkes family genealogy: unpublished typescript, in Fewkes family papers, Newton Historical Museum, Newton, Massachusetts (hereafter NHM).

² On 7 November 1888, in a tribute to Kneeland, Fewkes called them the “Lowell Institute” lectures, and said he heard them “twenty years ago” (Anonymous 1890: 40–41). Actually, they were not part of the more widely known Lowell Lectures but rather of the Lowell Free Course of Instruction. Presented in the evenings twice per week at MIT, the series attended by Fewkes began on 13 January 1868 (Anonymous 1867, 1875; Smith 1898: 42–44).

³ John McCrady diary, 22 May 1875: original mss, in McCrady family papers, Sewanee, Tennessee (hereafter McC diary).

⁴ Alexander Agassiz to D. C. Gilman, 12 January 1876: original ms in Special Collections, Milton S. Eisenhower Library, Johns Hopkins University, Baltimore, Maryland, USA.

⁵ McC diary, 11 December 1876.

⁶ McC diary, 3 May 1876.

⁷ McC diary, 17 May 1877.

⁸ Secretary, Boston Society of Natural History, to Jesse Walter Fewkes (hereafter JWF), 6 July 1876: Fewkes papers, NHM.

⁹ Anton Dohrn to JWF, 20 January 1877: Fewkes papers, NHM.

¹⁰ JWF, “Comparison of Fore and Hind Limbs in Vertebrates, Bowdoin Prize Dissertation by a Graduate of the Class of 1875”: original ms, Harvard University Archives (hereafter HUA), HU 89. 165. 460.

¹¹ “Circular Letter of Credit,” 8 February 1879: Fewkes papers, NHM.

¹² See the numerous letters from JWF to Richard Rathbun between January 1885 and April 1888 in Record Unit 233, Smithsonian Institution Archives (hereafter SIA). In three of those letters, 7 January 1885, 27 April 1885 and 4 October 1886, JWF discussed the collections Verrill sent to him for study.

¹³ JWF, “Trip to California, 1887”: original ms in JWF papers, Box 13, MS 4408 (103–107), National Anthropological Archives, Smithsonian Institution (hereafter NAA).

¹⁴ These articles are based on his manuscript notebook (note 13).

¹⁵ JWF, “Notebooks of Visits to Scientific Establishments in France and England”: original ms in JWF papers, Box 13, MS 4408 (103–107), (NAA).

¹⁶ JWF to AA, 1 August 1888: original ms in Museum of Comparative Zoology Archives (hereafter MCZ).

¹⁷ AA to JWF, 9 June 1889: MCZ.

¹⁸ AA to JWF, 10 September 1891: MCZ.

¹⁹ Thomas F. Hunt (hereafter TFH) to AA, 12 September 1891: MCZ.

²⁰ JWF to AA, 21 September 1891: MCZ.

²¹ JWF to AA, 22 September [1891]: MCZ.

²² TFH to AA, 22 September 1891: MCZ.

²³ AA to JWF, 24 September 1891: MCZ.

²⁴ Fewkes also presented a lecture before the Essex Institute on 24 November 1890, and published a dozen articles in anthropology journals between 1889 and 1891.

²⁵ TFH to AA, 1 October 1891: MCZ.

²⁶ AA to JWF, 6 October 1891: MCZ.

²⁷ JWF to AA, [October 1891]: MCZ.

²⁸ TFH to AA, 8 March 1892: MCZ.

²⁹ A copy of the altered version in the MCZ reads: "The gift of the Essex Institute, No. 4198, Jan. 26–May 9, 1892". In the original recalled version the pages are 1–91, and in the altered version, 1–92.

³⁰ Major sources of references to publications in zoology by JWF are: Hough (1933b), Thompson (1885), the *Zoological record*, and such standard sources as the *Royal Society of London catalogue of scientific papers*. We sought to establish the chronology of these works, although actual publication dates of some are uncertain. Dating of articles in the *Annals and magazine of natural history* are as given in Evenhuis (2003). Anonymous summaries of published works by Fewkes (Anonymous 1885, 1888b, 1888c) and annual reports published during his tenure as "Assistant in Charge of Radiates" at the MCZ are excluded.

³¹ Web of Science, ISI Web of Knowledge, Thomson Reuters Corporation (URL <http://apps.isiknowledge.com>, accessed on 21 February 2009).

³² Incorrect subsequent spellings by JWF of available names (such as *Gonothryrea*, for *Gonothyræa* Allman, 1864) have not been included.

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APPENDIX 1. Publications in natural history by Jesse Walter Fewkes. A date within parentheses after the year of a reference is the stated month or day of publication except for articles in the *Annals and magazine of natural history*, which are dated according to Evenhuis (2003).

1. 1878 Contributions to the myology of *Tachyglossa hystrix*, *Echidna hystrix* (Auct.). *Bulletin of the Essex Institute* **9**: 111–137.
2. 1879 (17 December) Note on the structure of *Rhizophysa filiformis*. *Proceedings of the Boston Society of Natural History* **20**: 292–303.
3. 1880 (1 April) Contributions to a knowledge of the tubular jelly-fishes. I. The development of the tentacular knob of *Physophora hydrostatica*. II. The mantle tubes of *Apolemia uvaria* and *Gleba hippopus*. III. The tubes of the larger nectocalyx of *Abyla pentagona*. IV. On *Halistemma*, *Agalma*, and *Agalmopsis*. V. Notice of a few Siphonophorae and Velellidae from the eastern coast of the United States. *Bulletin of the Museum of Comparative Zoölogy at Harvard College* **6**: 127–146.
4. 1880 (7 April) The tubes in the larger nectocalyx of *Abyla pentagona*. *Proceedings of the Boston Society of Natural History* **20**: 318–324.
5. 1880 (September) The siphonophores. I. – The anatomy and development of *Agalma*. *American naturalist* **14**: 617–630.
6. 1881 (January) Budding in free medusae. *American naturalist* **15**: 59–60.
7. 1881 (February) Studies of the jelly-fishes of Narragansett Bay. *Bulletin of the Museum of Comparative Zoölogy at Harvard College* **8**: 141–182.
8. 1881 (March) The siphonophores. II. – The anatomy and development of *Agalma* (continued). *American naturalist* **15**: 186–195.
9. 1881 (March) Reports on the results of dredging, under the supervision of Alexander Agassiz, in the Caribbean Sea, in 1878, 1879, and along the Atlantic coast of the United States, during the summer of 1880, by the U. S. Coast Survey Steamer “Blake,” Commander J. R. Bartlett, U.S.N., commanding. XI. Report on the Acalephae. *Bulletin of the Museum of Comparative Zoölogy at Harvard College* **8**: 127–140.
10. 1881 *Sketches of a few jelly-fish. A lecture read before the Newton Natural History Society. December 6, 1880.* Newton, Massachusetts.
Note: Work printed and bound by Republican Job Print, and donated to the Harvard University Library on 10 May 1881.
11. 1881 (May) On the development of the pluteus of *Arbacia*. *Memoirs of the Peabody Academy of Science* **1** (6): 1–10.
12. 1881 (October) The siphonophores. III. – Physophoridae (animals closely related to *Agalma*). *American naturalist* **15**: 772–782.
13. 1881 (November) On the morphology of the corbula of certain Plumularidae. *American naturalist* **15**: 901–902.
14. 1882 (February) The siphonophores. IV. – Anatomy and development of *Diphyes*. *American naturalist* **16**: 89–101.
15. 1882 (February) A *Cercaria* with caudal setae. *American journal of science*, third series, **23**: 134–135.
16. 1882 (April) Explorations of the surface fauna of the Gulf Stream, under the auspices of the U. S. Coast Survey, by Alexander Agassiz. I. Notes on acalephs from the Tortugas, with a description of new genera and species. *Bulletin of the Museum of Comparative Zoölogy at Harvard College* **9**: 251–289.
17. 1882 (April) On the Acalephae of the east coast of New England. I. Medusae from Newport. II. Acalephae collected by the U. S. Fish Commission during the summer of 1880 and 1881. *Bulletin of the Museum of Comparative Zoölogy at Harvard College* **9**: 291–310.
18. 1883 (February) The sucker on the fin of the heteropods is not a sexual characteristic. *American naturalist* **17**: 206–207.
19. 1883 (April) The affinities of *Tetraplatia volitans*. *American naturalist* **17**: 426.
20. 1883 (April) Occurrence of *Alaurina* in New England waters. *American naturalist* **17**: 426.
21. 1883 (June) Annelid messmates with a coral. *American naturalist* **17**: 595–597.
22. 1883 (June) The embryonic tentacular knobs of certain physophores. *American naturalist* **17**: 667–668.
23. 1883 (June) Note on *Alaurina prolifera* Busch. *American naturalist* **17**: 668–669.
24. 1883 (August) The siphonophores. V. – The Diphyidae. *American naturalist* **17**: 833–845.

25. 1883 (August) Exploration of the surface fauna of the Gulf Stream, under the auspices of the United States Coast Survey, by Alexander Agassiz. IV. On a few medusae from the Bermudas. *Bulletin of the Museum of Comparative Zoölogy at Harvard College* **11**: 79–90.
26. 1883 (December) Studies from the Newport Marine Zoölogical Laboratory. Communicated by Alexander Agassiz. XIII. On the development of certain worm larvae. *Bulletin of the Museum of Comparative Zoölogy at Harvard College* **11**: 167–208.
27. 1884 (January) Do crows carry objects in their claws? *The auk* **1**: 92–93.
28. 1884 (February) Notes on American medusae. *American naturalist* **18**: 195–198.
29. 1884 (March) Notes on medusae. *American naturalist* **18**: 300–305.
30. 1884 (March) A new pelagic larva. *American naturalist* **18**: 305–309.
31. 1884 (April) On the morphology of the “lateral rods” of the ophiuroid pluteus. *American naturalist* **18**: 431–432.
32. 1884 (April) Ducks transporting fresh-water clams. *The auk* **1**: 195–196.
33. 1884 (12 June) Branch III. – Coelenterata, p. 72 in KINGSLEY, J. S. (editor), *The standard natural history*. Volume 1. *Lower invertebrates*. Boston.
34. 1884 (12 June) Order II. – Discophora, pp 89–97 in KINGSLEY, J. S. (editor), *The standard natural history*. Volume 1. *Lower invertebrates*. Boston.
35. 1884 (12 June) Class III. – Siphonophora, pp 97–108 in KINGSLEY, J. S. (editor), *The standard natural history*. Volume 1. *Lower invertebrates*. Boston.
36. 1884 (12 June) Class IV. – Ctenophora, pp 108–112 in KINGSLEY, J. S. (editor), *The standard natural history*. Volume 1. *Lower invertebrates*. Boston.
37. 1884 (12 June) Class II. – Actinozoa, pp 112–124 in KINGSLEY, J. S. (editor), *The standard natural history*. Volume 1. *Lower invertebrates*. Boston.
38. 1884 (12 June) Coral islands, pp 125–134 in KINGSLEY, J. S. (editor), *The standard natural history*. Volume 1. *Lower invertebrates*. Boston.
39. 1884 (July) Bibliography to accompany “Selections from Embryological Monographs, compiled by Alexander Agassiz, Walter Faxon, and E. L. Mark.” III. Acalephs. *Bulletin of the Museum of Comparative Zoölogy at Harvard College* **11**: 209–238.
40. 1884 (September) (with MARK, E. L.) Selections from embryological monographs. Compiled by Alexander Agassiz, Walter Faxon, and E. L. Mark. III. Acalephs, and polyps. *Memoirs of the Museum of Comparative Zoölogy at Harvard College* **9** (3): 1–52.
41. 1885 (March) On the larval forms of *Spirorbis borealis* Daudin. *American naturalist* **19**: 247–257.
42. 1885 (July) Studies from the Newport Marine Zoölogical Laboratory. Communicated by Alexander Agassiz. XV. On the development of *Agalma*. *Bulletin of the Museum of Comparative Zoölogy at Harvard College* **11**: 239–275.
43. 1885 (14 September) On a collection of medusae made by the United States Fish Commission Steamer Albatross in the Caribbean Sea and Gulf of Mexico. *Proceedings of the United States National Museum* **8**: 397–402.
44. 1885 List of the medusae from near Point Barrow, Arctic Ocean, pp 163–165 in MURDOCK, J. (editor), *Report of the International Polar Expedition to Point Barrow, Alaska. Part IV. – Natural History. V. – Marine invertebrates*. Washington, D. C.
45. 1885 Results of the explorations made by the steamer “Albatross,” off the northern coast of the United States, in 1883. Preliminary list of Acalephae collected by the “Albatross” in 1883 in the region of the Gulf Stream. *United States Commission of Fish and Fisheries, report of the commissioner for 1883*, **11**: 595–601.
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50. 1887 (May) Studies from the Newport Marine Zoölogical Laboratory. Communicated by Alexander Agassiz. XVIII. On the development of the calcareous plates of *Amphiura*. *Bulletin of the Museum of Comparative Zoölogy at Harvard College* **13**: 107–150.
51. 1887 (27 October) A hydroid parasitic on a fish. *Nature* **36**: 604–605.
52. 1888 (19 January) A troublesome parasite of a brittle-starfish. *Nature* **37**: 274–275.
53. 1888 (January) Sea-side study on the coast of California. *American naturalist* **22**: 33–44.
54. 1888 (February) Are there deep-sea medusae? *American journal of science*, third series, **135**: 166–179.
55. 1888 (February) Studies from the Newport Marine Zoölogical Laboratory. Communicated by Alexander Agassiz. XIX. On certain medusae from New England. *Bulletin of the Museum of Comparative Zoölogy at Harvard College* **13**: 209–240.
56. 1888 (March) A new mode of life among medusae. *Proceedings of the Boston Society of Natural History* **23**: 389–395.
57. 1888 (1 April) Are there deep-sea medusae? *Annals and magazine of natural history*, sixth series, **1**: 247–260.
58. 1888 (1 May) On a new physophore, *Ploeophysa*, and its relationships to other siphonophores. *Annals and magazine of natural history*, sixth series, **1**: 317–322.
59. 1888 (1 May) On a new mode of life among medusae. *Annals and magazine of natural history*, sixth series, **1**: 362–368.
60. 1888 (June) A new marine larva and its affinities. *The microscope* **8**: 161–165.
61. 1888 (July) On Arctic characters of the surface fauna of the Bay of Fundy, and the connection with a theory of the distribution of floating marine life. *American naturalist* **22**: 601–612.
62. 1888 (July) Studies from the Newport Marine Zoölogical Laboratory. Communicated by Alexander Agassiz. XX. On the development of the calcareous plates of *Asterias*. *Bulletin of the Museum of Comparative Zoölogy at Harvard College* **17**: 1–56.
63. 1888 (July) On the origin of the present form of the Bermudas. *Proceedings of the Boston Society of Natural History* **23**: 518–522.
64. 1888 Medusae. Appendix no. 132, pp 39–45 in GREELY, A. W. (editor), *International Polar Expedition. Report on the proceedings of the United States Expedition to Lady Franklin Bay, Grinnell Land*. Volume **2**. Washington, D. C.
65. 1888 Echinodermata, Vermes, Crustacea, and pteropod Mollusca. Appendix no. 133, pp 47–53 in GREELY, A. W. (editor), *International Polar Expedition. Report on the proceedings of the United States Expedition to Lady Franklin Bay, Grinnell Land*. Volume **2**. Washington, D. C.
66. 1888 (December) On a new parasite of *Amphiura*. *Proceedings of the Boston Society of Natural History* **24**: 31–33.
67. 1889 (1 January) A preliminary notice of a stalked bryozoon (*Ascorhiza occidentalis*). *Annals and magazine of natural history*, sixth series, **3**: 1–6.
68. 1889 (1 February) On a new parasite of *Amphiura*. *Annals and magazine of natural history*, sixth series, **3**: 154–156.
69. 1889 (February) A corner of Brittany. *American naturalist* **23**: 95–109.
70. 1889 (1 March) On a new *Athorybia*. *Annals and magazine of natural history*, sixth series, **3**: 207–210.
71. 1889 (10 March) On the emission of a colored fluid as a possible means of protection resorted to by medusae. *The microscope* **9**: 65–69.
72. 1889 (March) On the serial relationship of the ambulacral and adambulacral calcareous plates of the starfishes. *Proceedings of the Boston Society of Natural History* **24**: 96–117.
73. 1889 (April) Across the Santa Barbara Channel. *American naturalist* **23**: 211–217.
74. 1889 (May) Across the Santa Barbara Channel. *American naturalist* **23**: 387–394.
75. 1889 (July) On a few Californian medusae. *American naturalist* **23**: 591–602.
76. 1889 (July) On a method of defense among certain medusae. *Proceedings of the Boston Society of Natural History* **24**: 200–208.
77. 1889 (1 August) On *Angelopsis*, and its relationship to certain Siphonophora taken by the ‘Challenger.’ *Annals and magazine of natural history*, sixth series, **4**: 146–155.
78. 1889 (1 August) A new marine larva and its affinities. *Annals and magazine of natural history*, sixth series, **4**: 177–181.
79. 1889 (August) Excavating habits of our common sea-urchin. *American naturalist* **23**: 728–730.
80. 1889 (September) *Physalia* in the Bay of Fundy. *American naturalist* **23**: 821.
81. 1889 (September) New Invertebrata from the coast of California. *Bulletin of the Essex Institute* **21**: 99–146.

82. 1889 (1 November) On a method of defense among certain medusae. *Annals and magazine of natural history*, sixth series, **4**: 342–350.
83. 1889 Natural history illustrations prepared under the direction of Louis Agassiz, 1849. The anatomy of *Astrangia danae*. Six lithographs from drawings by A. Sonrel. Explanation of plates by J. W. Fewkes. *Special publication, Smithsonian Institution* **671**: 1–20.
84. 1889 Report on the medusae collected by the U. S. Fish Commission Steamer Albatross in the region of the Gulf Stream, in 1885–'86. *United States Commission of Fish and Fisheries, report of the commissioner for 1886*, **14**: 513–536.
85. 1890 (January) On excavations made in rocks by sea-urchins. *American naturalist* **24**: 1–21.
86. 1890 (February) The origin of the present outlines of the Bermudas. *American geologist* **5**: 88–100.
87. 1890 (March) On certain peculiarities in the flora of the Santa Barbara Islands. *American naturalist* **24**: 215–224.
88. 1890 (May) A zoölogical reconnoissance in Grand Manan. *American naturalist* **24**: 423–438.
89. 1890 (May) Sea-urchin excavations at Guaymas, Mexico. *American naturalist* **24**: 478–480.
90. 1891 (September) An aid to a collector of the Coelenterata and Echinodermata of New England. *Bulletin of the Essex Institute* **23**: 1–91.
Note: this article was withdrawn, and a revised version was published in 1892 as **91** below (see text for details).
91. 1892 (April or May) An aid to a collector of the Coelenterata and Echinodermata of New England. *Bulletin of the Essex Institute* **23**: 1–92.
Note: although the date in the journal in which this article appeared is given as 1891, this revised version of **90** above appeared in 1892 (see text for details).

APPENDIX 2. Available names of family-, genus-, and species-group taxa of invertebrates authored by Jesse Walter Fewkes.

CNIDARIA

Anthozoa

Anemonia stimpsonii Fewkes, 1889 (**81**): California: Santa Barbara; Santa Cruz Island

Bunodes californica Fewkes, 1889 (**81**): California: Santa Barbara; Santa Cruz Island

Hydrozoa

Angelidae Fewkes, 1886 (**47**)

Halicreatidae Fewkes, 1885c (**45**) (as Halicreasidae)

Ploeophysidae Fewkes, 1888 (**58**)

Agalmoides Fewkes 1886 (**47**): three species assigned to genus by Fewkes, without designation of a type

Aglaophenopsis Fewkes, 1881 (**9**): type species *A. hirsuta* Fewkes, 1881

Angelopsis Fewkes, 1885 (**45**): type species *A. globosa* Fewkes, 1885

Atractyloides Fewkes 1889 (**81**): type species *A. formosa* Fewkes, 1889

Calliagalma Fewkes 1882 (**16**): type species *Agalmopsis utricularia* Claus, 1879

Callicarpa Fewkes, 1881 (**9**): type species *C. gracilis* Fewkes, 1881

Calycidion Fewkes, 1882 (**17**): type species *C. formosum* Fewkes, 1882

Calycopsis Fewkes, 1882 (**17**): type species *C. typa* Fewkes, 1882

Chromatonema Fewkes, 1882 (**17**): type species *C. rubrum* Fewkes, 1882

Dinematella Fewkes, 1881 (**7**): type species *D. cavosa* Fewkes, 1881

Diplorybia Fewkes 1888 (**58**): type species *Athorybia formosa* Fewkes, 1882 (**16**)

Halicalyx Fewkes, 1882 (**16**): type species *H. tenuis* Fewkes, 1882

Halicreas Fewkes, 1882 (**17**): type species *H. minimum* Fewkes, 1882

Haliphyta Fewkes, 1882 (**17**): type species *H. magnifica* Fewkes, 1882

Halitiara Fewkes, 1882 (16): type species *H. formosa* Fewkes, 1882
Hydrichthys Fewkes 1887 (51): type species *H. mirus* Fewkes, 1887
Mabella Fewkes, 1881 (7): type species *M. gracilis* Fewkes, 1881
Microcampana Fewkes, 1889 (74): type species *M. conica* Fewkes, 1889
Oceaniopsis Fewkes, 1883 (25): type species *O. bermudensis* Fewkes, 1883
Pleurocarpa Fewkes, 1881(9): type species *P. ramosa* Fewkes, 1881
Pleurophysa Fewkes 1889 (84): type species *P. insignis* Fewkes, 1889
Ploeophysa Fewkes 1888 (58): type species *P. agassizii* Fewkes, 1888
Pterophysa Fewkes, 1885 (45): type species *P. grandis* Fewkes, 1885
Sphaeronectes Fewkes, 1889 (81): type species *S. gigantea* Fewkes, 1889
Sphaerula Fewkes, 1881 (7): type species *S. formosa* Fewkes, 1881
Agalma papillosum Fewkes, 1882 (16): Florida: near Key West
Agalmopsis fragile Fewkes, 1882 (16): Florida: Key West
Aglaophenia crenata Fewkes, 1881 (9): Continental slope off Cape Cod
Aglaophenia gracillima Fewkes, 1881 (9): Martinique
Aglaophenia insignis Fewkes, 1881 (9): Grenada
Aglaophenia minuta Fewkes, 1881 (9): Continental slope off South Carolina
Aglaophenia robusta Fewkes, 1881 (9): Montserrat
Aglaophenopsis hirsuta Fewkes, 1881 (9): Continental slope off South Carolina
Aglaura vitrea Fewkes, 1882 (16): Florida: Tortugas
Angelopsis globosa Fewkes, 1885 (45): Western Atlantic: off New Jersey
Antennopsis ramosa Fewkes, 1881 (9): Continental slope off South Carolina
Athorybia californica Fewkes, 1889 (70): California: Santa Barbara Channel
Athorybia formosa Fewkes, 1882 (16): Florida: Tortugas
Atractylodes formosa Fewkes, 1889 (81): California: no specific locality given
Callicarpa gracilis Fewkes, 1881 (9): Locality unknown (label missing)
Calycidion formosum Fewkes, 1882 (17): Rhode Island: Newport
Calycopsis typa Fewkes, 1882 (17): Massachusetts: off Martha's Vineyard
Campanularia insignis Fewkes, 1881 (9): Continental slope off South Carolina
Campanularia occidentalis Fewkes, 1889 (81): California: Santa Barbara
Chromatonema rubrum Fewkes, 1882 (17): Massachusetts: off Martha's Vineyard
Cladocarpus compressus Fewkes, 1881 (9): St. Vincent
Cunina discoides Fewkes, 1881 (7): Narragansett Bay
Dinematella cavosa Fewkes, 1881 (7): Narragansett Bay
Eucheilota quadralis Fewkes, 1883 (25): Rhode Island: Newport
Eutima gracilis Fewkes, 1881 (7): Narragansett Bay
Halicalyx tenuis Fewkes, 1882 (16): Florida: Key West
Halicreas minimum Fewkes, 1882 (17): Massachusetts: off Martha's Vineyard
Haliphyta magnifica Fewkes, 1882 (17): Massachusetts: off Martha's Vineyard
Halitiara formosa Fewkes, 1882 (16): Florida: Tortugas
Hydrichthys mirus Fewkes, 1887 (51): Rhode Island: Newport
Lafoea elegans Fewkes, 1881 (9): Barbados
Mabella gracilis Fewkes, 1881 (7): Narragansett Bay
Mesonema bairdii Fewkes, 1886 (47): Western Atlantic: off New Jersey
Microcampana conica Fewkes, 1889 (74): California: Santa Cruz Island
Moeeria multitentacula Fewkes, 1881 (7): Massachusetts: Buzzard's Bay
Oceaniopsis bermudensis Fewkes, 1883 (25): Bermuda: Castle Harbour
Perigonimus formosus Fewkes, 1889 (81): California: Santa Cruz
Pleurocarpa ramosa Fewkes, 1881 (9): St. Vincent
Pleurophysa insignis Fewkes, 1889 (84): Western Atlantic: off New Jersey
Ploeophysa agassizii Fewkes, 1888 (58): Western Atlantic: Gulf Stream
Plumularia caulitheca Fewkes, 1881 (9): Grenada
Polycanna americana Fewkes, 1886 (47): Sargasso Sea, off South Carolina
Pterophysa grandis Fewkes, 1885 (45): Western Atlantic: off Virginia
Rhizophysa gracilis Fewkes, 1882 (16): Florida: Tortugas (?)
Rhizophysa uvaria Fewkes, 1886 (47): Western Atlantic: off Delaware
Sertularella formosa Fewkes, 1881 (9): Grenada; Martinique
Solmaris incisa Fewkes, 1885 (45): Western Atlantic: off New Jersey
Sphaeronectes gigantea Fewkes, 1889 (81): California: Santa Cruz

Sphaerula formosa Fewkes, 1881 (7): Narragansett Bay
Steenstrupia occidentalis Fewkes, 1889 (81): California: Santa Cruz
Stephanomia atlantica Fewkes, 1882 (16): Florida: Tortugas
Syncoryne occidentalis Fewkes, 1889 (81): California: Santa Cruz; San Francisco; Santa Barbara
Velella meridionalis Fewkes, 1889 (81): California: no specific locality given
Willia gemmifera Fewkes, 1882 (17): Rhode Island: Newport
Willia occidentalis Fewkes, 1889 (81): California: Santa Cruz Island

Cubozoa

Tamoya punctata Fewkes, 1883 (25): Bermuda: Castle Harbour

Scyphozoa

Ephyroides Fewkes, 1885 (45): type species *E. rotaformis* Fewkes, 1885
Nauphantopsis Fewkes, 1885 (45): type species *N. diomedae* Fewkes, 1885
Nectopilema Fewkes 1887 (49): type species *N. verrilli* Fewkes, 1887
Stomatonema Fewkes, 1884 (29): type species *S. reticulatum* Fewkes, 1884
Atolla bairdii Fewkes, 1886 (47): Western Atlantic: off Delaware and North Carolina
Atolla verrillii Fewkes, 1885 (45): Western Atlantic: off New Jersey
Ephyroides rotaformis Fewkes, 1885 (45): Western Atlantic: off New Jersey
Nauphanta polaris Fewkes, 1886 (48): Ellesmere Island: Discovery Harbor
Nauphantopsis diomedae Fewkes, 1885 (45): Western Atlantic: off Delaware
Nectopilema verrilli Fewkes, 1887 (49): Connecticut: New Haven
Periphylla humilis Fewkes, 1886 (47): Western Atlantic: off New Jersey
Stomatonema reticulatum Fewkes, 1884 (29): Uruguay: Montevideo Harbor

NEMERTINA

Pilidium recurvatum Fewkes, 1883 (26) : Rhode Island: Newport

BRYOZOA

Ascorhiza Fewkes, 1889 (67): type species *A. occidentalis* Fewkes, 1889
Ascorhiza occidentalis Fewkes, 1889 (67): California: Santa Barbara Channel

ANNELIDA

Sabellaria californica Fewkes, 1889 (81): California: Santa Barbara
Sabella pacifica Fewkes, 1889 (81): California: Santa Barbara
Spio californica Fewkes, 1889 (81): California: Santa Barbara

MOLLUSCA

Cabrilla Fewkes, 1889 (81): type species *C. occidentalis* Fewkes, 1889
Cabrilla occidentalis Fewkes, 1889 (81): California: Santa Cruz Island

ECHINODERMATA

Dermasteriidae Fewkes, 1889 (**81**)

Calliasterias Fewkes, 1889 (**81**): type species *Asterias exquisita* de Loriol, 1887

ASCIDIACEA

Clavellinopsis Fewkes, 1889 (**81**): type species *C. rubra* Fewkes, 1889

Clavellinopsis rubra Fewkes 1889 (**81**): California: Santa Barbara