

## CONTRIBUTIONS OF F.W. PUTNAM (1839-1915) TO ARCHAEOETHNOBIOLOGY

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ABSTRACT.—Frederic Ward Putnam was trained by Louis Agassiz between 1856-64 at the Museum of Comparative Zoology, Harvard University, where he worked as an assistant in charge of fishes. After serving at several institutions located at his native Salem, Massachusetts, he returned to Harvard University as Curator of the Peabody Museum of American Archaeology and Ethnology in 1875 and remained there for the rest of his life. In addition to developing that museum he was instrumental in developing anthropology at the Field Museum of Natural History in Chicago, the American Museum of Natural History in New York, and at the University of California in Berkeley. He specialized in american archaeology and published especially studies on shell-heaps of New England; shell-heaps of California; ash pits, Indian mounds, and cemeteries of the Mississippi Valley; stone graves in Tennessee; and caves of Kentucky. Although he was not specifically an archaeoethnobiologist, he contributed in many ways to the development of that field.

### INTRODUCTION

Frederic Ward Putnam was born in Salem, Massachusetts, in 1839. As a young man his interest in nature was developed by his father and Dr. Henry Wheatland at the Essex Institute in Salem where he assisted Dr. Wheatland at the museum of the Institute. Putnam later studied under Louis Agassiz (1856-64) at the Museum of Comparative Zoology, Harvard University, and eventually was appointed assistant in charge of fishes. He was simultaneously Curator of Vertebrates at the Essex Institute, and served as the director between 1864-70. During part of that time (1867-69) he was also superintendent of the museum of the East India Marine society in Salem. In 1866, when George Peabody founded the Peabody Academy of Science (now the Peabody Museum of Salem), Putnam became its first Director and Curator of Vertebrates (1867-74). This new institution incorporated the museum of the East India Marine Society (Whitehill 1949). With his colleagues he was founder of the *American Naturalist* and the American Society of Naturalists.

While attending the Montreal meetings of the American Association for the Advancement of Science in 1857, Putnam discovered shell-heaps at Mount Royale Park which stimulated his interest in archaeology and eventually led him to turn from zoology to archaeology as a career. He became Curator at the Peabody Museum of American Archaeology and Ethnology at Harvard University in 1875, and remained until his retirement in 1909. He then served as Honorary Director until his death in 1915. From a small nucleus of miscellaneous collections in Boylston Hall, he developed one of the leading museums of anthropology in the country, and greatly influenced the development of departments and museums of anthropology at the Field Museum of Natural History in Chicago, the American Museum of Natural History in New York, and the University of California in Berkeley (Dexter 1966a,b).

## CONTRIBUTIONS TO ARCHAEOETHNOBIOLOGY

Among other things, Putnam's published studies illustrate the utilization of biological resources by the North American aborigines. In addition to compiling data, he collected and preserved archaeological specimens and animal remains still in use for research at the Peabody Museum of Harvard University (pers. comm., Dr. Stephen Williams). Putnam's practice of saving biological specimens from archaeological sites, learned from his training in zoology under Agassiz, was one of his greatest contributions to a discipline not yet formalized. As a zoologist-turned-archaeologist, his viewpoint considered man as just another species, to be studied as a part of an over-all view of natural history. Two of Putnam's former associates paid tribute to this philosophy: Boas (1915) pointed out that Putnam applied the methods of natural history in all of his work, and Kroeber (1915:713) wrote that "He was early and remained to the last, a natural historian."

Castetter (1944) regarded ethnobiology as the relationship of primitive man to the total biological environment. Many define archaeoethnobiology as the study of relationships of living organisms to, and their utilization by, prehistoric cultures (i.e., aborigines). Selected portions of some of the reports and papers by Putnam cited here have been reprinted by Phillips (1973) and Williams (1973). No attempt will be made here to reiterate the details given in the various publications, which can be consulted for such information. The present paper indicates only the scope of organisms important in the life of certain groups of non-industrial men in North America. Putnam did not seek out biological artifacts exclusively; in one sense they were often a by-product of his investigations, but they always indicated the relation of man to nature.

Following is a brief summary of Putnam's contributions with a reasonably complete bibliography of his works pertaining to archaeoethnobiology.

A. Shell-heaps of New England (Putnam 1869a,b; 1871; 1872; 1882a; 1883a).

Putnam's interest in the shell-heaps of New England was stimulated by Dr. Jeffries Wyman, one of his teachers at Harvard (Wyman, 1868). Among major items studied were:

1. Food mollusks—large quantities of the bivalves common clam, hen clam, quahog, oyster, and scallop (quahog, oyster, and scallop are now gone from many areas where they were formerly found); and the gastropods, moon snail and whelk.
2. Food vertebrates—fishes (especially monkfish, cod fish, flounder, and sturgeon); turtles; birds (ducks and herons); mammals (Virginia deer, moose, black bear, fox, skunk, otter, beaver, and seal).
3. Implements of sharpened bone, bone awls, and fish spear heads from bone.
4. Clam shells as binder in clay pottery.
5. Shells for ornaments (some pierced).
6. Human bones ("as if for stew pot")—may indicate cannibalism—(Putnam 1882a).

Putnam's work on the north Atlantic coast was soon followed by that of Baird (1882), Matthew (1884), Bailey (1887), Ganong (1889) and Loomis and Young (1912), all of whom gave lists of marine life utilized by the prehistoric natives. General reviews of the culture of the northeastern Indian hunters have been published by Cooper (1946) and Flannery (1946).

B. Shell-heaps of California and Pueblos of Arizona and New Mexico (Putnam et al. 1879).

As part of the Wheeler U.S. Geographical Survey (Putnam et al., 1879), Putnam reported on the biological content of shell-heaps in southern California. In later years the study was followed up by Nelson (1909), Kroeber (1911), and Gifford (1916).

1. Shell-heaps of the coast and islands of Southern California.
  - a. Fish hooks from abalone shells.

- b. Needles, pins, awls, fish hooks, harpoon points, knives, swords, daggers and ornaments from bone.
- c. Harpoon points for fishing and wedge-shaped implements from ribs of cetaceans.
- d. Polishing bones and swords from lower jaw of porpoise.
- e. Wooden swords and handles with inlay of abalone shell.
- f. Whistles from tibia of deer and bones of birds.
- g. Shell beads for ornaments on implements, and olive shells strung for beads.
- h. Pendants made from scallop shells, the columella of snail shells, and the serrated lips of *Cyprea* (cowrie) shells.
- i. Cups for holding paint made from small abalone shells and several species of bivalves and larger limpet shells.
- j. Sharks teeth, cetacean teeth, rodent teeth as decorative pendants (possibly also, claws of bears and panthers).
- k. Fabrics and rope from *Zostera* (eelgrass).

Putnam's service in developing anthropology in California has been outlined by Dexter (1966c), and his role in the Calaveras Skull controversy will soon be published (Dexter 1986).

- 2. Pueblos of Arizona and New Mexico
  - a. Cloth and nets from yucca fiber.
  - b. Twine and rope from twisted bark fiber (inner bark of trees).
  - c. Basket work from long stems of *Juncus* (sedges).
  - d. Brushes from soap-root (for washing hair).

Fewkes (1896a,b; 1904), a former colleague of Putnam, made a study of ethnobiology at the Tusayan pueblos in Arizona.

- C. Ash pits (Ohio explorations) (Putnam 1882b; 1885; 1888).
  - 1. Carbonized maize—a major food item.
  - 2. Burnt seeds, nuts, and acorns, and pieces of grass matting.
  - 3. Shells of fresh-water clams for food, many with holes cut in center to make a hoe.
  - 4. Bones of fishes, reptiles, birds and mammals used as food. Those of deer, elk (wapiti), and bear generally broken (to obtain marrow?).
  - 5. Fish hooks and harpoon points from animal bones.
  - 6. Implements made from animal bones and the antlers of deer and elk.
  - 7. Awls, beads, and whistles (bird-call whistles), from hollow bones of birds.

- D. Indian mounds of Mississippi Valley (Putnam 1872b; 1874a; 1880a; 1883c; 1905; Metz and Putnam 1886).

Indian skulls from mounds at Dubuque, Iowa, were both short and high, and long and flat, suggesting a wide distribution and migration of both types. Putnam believed a movement had taken place from Mexico northward, and then returned to the south.

From a shell-bed at Rock Island, Illinois, a human skull was found with shells of freshwater mussels, a freshwater snail (*Melania subsolida*), and several species of land snails. Putnam regarded this deposit as, "Ancient Indian" and not "Mount Builder" since the latter did not make shell-beds.

From mounds in the Cumberland Valley of Tennessee were found shell beads and pearls interpreted as toys in the graves of children.

From Ohio mounds:

- 1. Ornaments of shell including sea shells.

2. Shell beads including a marine snail (*Marginella* sp.) with the apex cut off for stringing, and pearl beads from river mussels.
3. River clams (mussels) for food.
4. Split animal bones—mostly deer and bear (food).
5. Implements of bone including needles and awls.
6. Bear's teeth perforated for ornaments, some with pearls inserted.

Putnam's contributions to Ohio archaeology have been summarized (Dexter 1965), and the Putnam-Metz correspondence on mound explorations in Ohio has recently been published (Dexter 1982).

Further studies on the utilization of animal life (especially the mollusks) by prehistoric natives of the Mississippi Valley are included in works by Read (1903), Baker (1930, 1931, 1941), Morrison (1942), and Willoughby and Hooton (1975). A general review of the field of ethnoconchology has been published by Lambert (1960).

On a water bottle collected at Moundville, Alabama, there was a design identified by Witmer Stone as the Ivory-billed Woodpecker (Putnam 1905), now virtually extinct.

E. Stone Graves in Tennessee (Putnam 1878; 1880a,b).

With skeletal remains of "The Stone Grave People of Tennessee" were found:

1. Marine shells (including olive shells) from the Gulf Coast (trade goods).
2. Shell beads and ornaments; pearls.
3. Freshwater mussel shells (including a spoon made from one).
4. Animals bones—especially deer and birds.
5. Bone implements, needles, etc.; awls from deer antlers.
6. Turtle shells (for rattles?). (See Dexter 1966d for an account of Putnam's work in herpetology).
7. Burnt corncobs and charred fragments of matting.
8. Pottery of clay mixed with broken shells.

F. Cemeteries (Putnam 1874b; 1882b; 1883b; 1885; 1887; 1888).

1. Essex County, Massachusetts.
  - a. Shell beads (Wampum). For shells used as money, see Ingersoll (1883) and Sterns (1889).
  - b. Fish spears cut from bone (for use in future life).
2. Little Miami Valley, Ohio.
  - a. Shell ornaments.
  - b. Perforated clam shells (hoes?).
  - c. Animal bones (food).
  - d. Bone implements, including fish hooks from leg bones of deer.
  - e. "Salamander pots" (head of salamander modeled on edge or lip of vessel).

G. Caves (Putnam 1875a,b,c; Putnam et al. 1879).

1. Mammoth Cave of Kentucky.
 

Packard and Putnam (1879) published an account of "The Mammoth Cave and its Inhabitants," but archaeology was not included. Dexter (1985) recently described Putnam's scientific work in Mammoth Cave, including archaeology.
2. Salt Cave (near Mammoth Cave, Kentucky).
  - a. Bundles of fagots tied with twisted bark (burned for light or firewood?).
  - b. Reed torches.
  - c. Small fagots of inner bark; cloth of inner bark.

- d. Sandals of braided, twisted leaves of rushes and cattails.
  - e. Fragments of large gourds.
  - f. Wooden dish.
  - g. River "muscles" (Putnam 1875a)—one with hole (hoe?). Putnam used the old spelling "muscle". Dexter (1961, 1967) has traced the history and use of the word "muscle" formerly used in place of the more familiar spelling "mussel".
  - h. Feathers (turkey?).
- H. Surface finds (Putnam 1872c; 1873).
1. Turkey Hill, Ipswich, Massachusetts. Found stone ornament of soft slate (6.5 cm) representing a fish. Probably "worn as a medicine" (ie., votive), or to designate wearer "was a noted fisherman."
  2. Seabrook, New Hampshire. Found was a carved stone representing a porpoise or white whale (Beluga Whale), made of sienitic rock (25 x 5.5 cm) used as an ornament or totem.

### CONCLUSION

Although not specifically an ethnobiologist, F.W. Putnam, a zoologist-turned archaeologist, contributed in many ways to the study of archaeoethnobiology. With his training in zoology under Louis Agassiz, he studied man as another animal and was much concerned with man's utilization of biological resources.

### LITERATURE CITED

- BAILEY, L.W. 1887. On the relics of the stone age in New Brunswick. *Bull. Nat. Hist. Soc. of New Brunswick* 6:3-16.
- BAIRD, SPENCER F. 1882. Notes on certain shell mounds on the coast of New Brunswick and of New England. *Proceed. U.S. Nat. Mus.* (for 1881) 4:292-297.
- BAKER, FRANK C. 1930. The use of animal life by the mound-building Indians of Illinois. *Trans. Illinois. State Acad. Sci.* 22:41-64.
- . 1931. Additional notes on animal life associated with the mound builders of Illinois. *Trans. Illinois State Acad. Sci.* 23:231-235.
- . 1941. A study in ethnology of the prehistoric Indians of Illinois. Part 2. Contributions to the archaeology of the Illinois River Valley. *Trans. Amer. Philos. Soc.* 32:51-78.
- BOAS, FRANZ. 1915. Frederic Ward Putnam. *Science* 42:330-332.
- CASTETTER, EDWARD F. 1944. The domain of ethnobiology. *Amer. Nat.* 78:158-170.
- COOPER, JOHN M. 1946. The culture of the northeastern Indian hunters: a reconstructive interpretation. Pp. 272-306 *In* Man in northeastern North America. Johnson, Frederick (ed.). Papers, Robert S. Peabody Found. for Arch. Vol. 3.
- DEXTER, RALPH W. 1961. Mussel Shoals vs. Muscle Shoals. *Sterkiana* 4:29-31.
- . 1965. Contributions of Frederic Ward Putnam to Ohio archaeology. *Ohio J. Sci.* 65:110-117.
- . 1966a. Frederic Ward Putnam and the development of museums of natural history and anthropology in the United States. *Curator* 9:151-155.
- . 1966b. Frederic Ward Putnam's interests in natural history. *Nature Study* 20(3):1-2.
- . 1966c. Contributions of Frederic Ward Putnam to the development of anthropology in California. *Sci. Ed.* 50:314-318.
- . 1966d. Some herpetological notes and correspondence of Frederic Ward Putnam. *J. Ohio Herp. Soc.* 5:109-114.
- . 1967. Addenda on mussel vs. muscle. *Sterkiana* 27:1-2.
- . 1982. The Putnam-Metz correspondence on mound explorations in Ohio. *Ohio Arch.* 32(4):24-28.

## LITERATURE CITED (Continued)

- \_\_\_\_\_. 1985. F.W. Putnam's scientific studies at Mammoth Cave (1871-1881). *NSS (Nat. Speleo. Soc.) Bull.* 46:10-14.
- \_\_\_\_\_. 1986. Historical aspects of the Calaveras skull controversy. *Amer. Antiquity* (in press).
- FEWKES, J. WALTER. 1896a. A contribution to ethnobotany. *Amer. Anthropol.* 9:14-21.
- \_\_\_\_\_. 1896b. Pacific coast shells from prehistoric Tusayan pueblos. *Amer. Anthropol.* 9:359-367.
- \_\_\_\_\_. 1904. Two summers work in pueblo ruins. *Bur. Amer. Ethnol.* 22nd Annu. Rept. (for 1900-01):5-195.
- FLANNERY, REGINA. 1946. The culture of the northeastern Indian hunters: a descriptive survey. Pp. 262-305 *In Man in northeastern North America*. Johnson, Frederick (ed.). Papers, Robert S. Peabody Found. for Arch. Vol. 3.
- GANONG, W.F. 1889. The economic Mollusca of Acadia. *Bull. Nat. Hist. Soc. of New Brunswick* 8:3-116.
- GIFFORD, EDWARD W. 1916. Composition of California shellmounds. *Univ. California Publ. in Amer. Arch. and Ethnol.* 12:1-29.
- INGENSALL, ERNEST. 1883. Wampum and its history. *Amer. Nat.* 17:467-479.
- KROEBER, ALFRED L. 1911. Shell mounds at San Francisco and San Mateo. *Records of the Past* 10:227-228.
- \_\_\_\_\_. 1915. Frederic Ward Putnam. *Amer. Anthropol.* 17:712-718.
- LAMBERT, R.J., JR. 1960. Review of the literature of ethno-conchology pertinent to archaeology. *Sterkiana* 2:1-8.
- LOOMIS, F.B. and D.B. YOUNG. 1912. On the shell heaps of Maine. *Amer. Jour. Sci.* 34:17-42.
- MATTHEW, G.F. 1884. Discoveries at a village of the stone age at Bocabec, New Brunswick. *Bull. Nat. Hist. Soc. of New Brunswick* 1:5-29.
- METZ, CHARLES L. and F.W. PUTNAM. 1886. Explorations in Ohio. The Marriott mound and its contents. 18th Annu. Rept., Peabody Mus. *Amer. Arch. Ethnol.*, pp. 449-466.
- MORRISON, JOSEPH P.E. 1942. Preliminary report on mollusks found in the shell mounds of the Pickwick Landing Basin in the Tennessee River Valley. *Bur. Amer. Ethnol., Bull.* 129:339-392.
- NELSON, N.C. 1909. Shell mounds of the San Francisco Bay region. *Univ. California Publ. Amer. Arch. and Ethnol.* 7:309-356.
- PACKARD, ALPHEUS S. and F.W. PUTNAM. 1879. *The Mammoth Cave and its inhabitants*. Salem Press, Salem, Mass.
- PHILLIPS, PHILIP (ed.). 1973. *Antiquities of the new world. Early explorations in archaeology*. Vol. 8. The archaeology reports of Frederic Ward Putnam (from the Annual Repts. of the Peabody Museum of Amer. Arch. Ethnol., Cambridge, 1875-1903) AMS Press, Inc., N.Y.
- PUTNAM, FREDERIC W. 1869a. On shell-heaps in Essex County, Massachusetts. *Bull. Essex Insti.* 1:123.
- \_\_\_\_\_. 1869b. On skulls of several species of bears . . . found in a shellheap on Goose Island, Massachusetts. *Bull. Essex Insti.* 1:138.
- \_\_\_\_\_. 1871. Indian relics from Beverly. *Bull. Essex Insti.* 3:123-125.
- \_\_\_\_\_. 1872a. Indian shell heaps. *Bull. Essex Insti.* 4:122-123.
- \_\_\_\_\_. 1872b. Note on ancient races of America. *Proceed. Boston Soc. Nat. Hist.* 15:228-229.
- \_\_\_\_\_. 1872c. Description of an ancient Indian carving found in Ipswich. *Bull. Essex Insti.* 4:156-158.
- \_\_\_\_\_. 1873. On stone implements and a carved stone representing a cetacean found at Seabrook, N.H. *Bull. Essex Insti.* 5:111-114.
- \_\_\_\_\_. 1874a. Notice of Indian skull from shellbed on Rock Island, Illinois. *Bull. Essex Insti.* 6:70-72.
- \_\_\_\_\_. 1874b. Indian remains from Essex County, Massachusetts. *Bull. Essex Insti.* 6:17-19.
- \_\_\_\_\_. 1875a. Archaeological explorations in Indiana and Kentucky. *Amer. Nat.* 9:410-415.
- \_\_\_\_\_. 1875b. Archaeological researches in Kentucky. *Bull. Essex Insti.* 7:2-9.
- \_\_\_\_\_. 1875c. Archaeological researches in Kentucky and Indiana, with description of Salt Cave. *Proceed. Boston Soc. Nat. Hist.* 17:314-332.
- \_\_\_\_\_. 1878. Archaeological explorations in Tennessee. *Bull. Essex Insti.* 10:72-85.
- \_\_\_\_\_. 1880a. Archaeological explorations in Tennessee. *Proceed. Boston Soc. Nat. Hist.* 20:331-333.
- \_\_\_\_\_. 1880b. Archaeological explorations

## LITERATURE CITED (Continued)

- in Tennessee. 11th Annu. Rept., Peabody Mus. Amer. Arch. Ethnol. 2:305-360.
- \_\_\_\_\_. 1882a. On the Robinson collection from shellheap at Ipswich. Bull. Essex Insti. 14:161-163.
- \_\_\_\_\_. 1882b. Archaeological explorations at Madisonville, Ohio. Proceed. Boston Soc. Nat. Hist. 21:216-222.
- \_\_\_\_\_. 1883a. Shellheaps on the coast of Maine. Science 1:319.
- \_\_\_\_\_. 1883b. The ancient cemetery at Madisonville, Ohio. Science 1:373-374.
- \_\_\_\_\_. 1883c. Mound explorations in the Little Miami Valley, Ohio. Science 1:496-497.
- \_\_\_\_\_. 1885. Explorations of the Harness Mounds in the Scioto Valley, Ohio. 18th Annu. Rept., Peabody Mus. Amer. Arch. Ethnol. 3:223-227.
- \_\_\_\_\_. 1887. The way bone fish-hooks were made in Little Miami Valley. 20th Annu. Rept., Peabody Mus. Amer. Arch. Ethnol. 3:581-586.
- \_\_\_\_\_. 1888. Note on bone fish-hooks. Proceed. Boston Soc. Nat. Hist. 23:240.
- \_\_\_\_\_. 1905. Bird design on water bottle from Moundville, Alabama. P. 138 *In* Moore, C.B. 1905. Certain aboriginal remains, Black Warrior River. J. Acad. Nat. Sci. Phila. Vol. 13.
- PUTNAM, FREDERIC W., et al. 1879. Reports upon archaeological and ethnological collections from vicinity of Santa Barbara, California, and from ruined pueblos of Arizona and New Mexico, and certain interior tribes. Rept. U.S. Geog. Survey West of the 100th meridian (Wheeler Survey). Vol. 7, Archaeology, 479 pp.
- READ, MATTHEW C. 1903. Archaeology of Ohio. Western Reserve Hist. Soc., Cleveland, Ohio.
- STEARNS, ROBERT E.C. 1889. Ethno-conchology: a study of primitive money. U.S. Nat. Mus., Annu. Rept. for 1886-87: 297-334.
- WHITEHILL, WALTER M. 1949. The East India Marine Society and the Peabody Museum of Salem. A sesquicentennial history. Anthoensen Press, Portland, Maine.
- WILLIAMS, STEPHEN (ed.). 1973. Antiquities of the New World. Early explorations in archaeology. Vol. 5. The selected Archaeological papers of Frederic Ward Putnum, 1855-1915. AMS Press, Inc., New York.
- WYMAN, JEFFRIES. 1868. An account of some Kjoekken-moeddings, or shell-heaps, in Maine and Massachusetts. Amer. Nat. 1:561-584.