



Curriculum Units by Fellows of the Yale-New Haven Teachers Institute
1983 Volume II: Greek and Roman Mythology

Dolphins and Whales In Mythology Part One of a Multidisciplinary Unit

Curriculum Unit 83.02.12
by Deborah Lynn Turnbull

As I write this unit, I realize that at first glance it might not appear to be useful to many educators because of its rather narrow focus. Its central subject, dolphins and whales, is, however, only a part of its message.

I have been involved in scientific learning, research, and formal teaching for ten years. I have found the approach to the teaching of science often to be boring, narrow in focus, and uncreative, so much so at times that I fear it often misses its objective, to educate people so that they can make knowledgeable decisions about the future of our planet.

It was one of my main missions in turning from a researcher to a teacher to try to correct some of this situation.

I hope that other educators who read this unit may see it as a template from which they can develop lesson plans. Through my attempts to combine science, art, and literature, they may see ways to do the same themselves with different subject materials.

My perhaps idealistic hope is that by teaching well planned, well rounded, and humanistically integrated curricula, we may aid in the development of students with some of the same attributes.

Dolphins and whales have been the subjects of numerous ancient myths. They have appeared as the escorts of Aphrodite, Atargatis and Eros, and as the salvation of Arion. In some myths we see them in connection with birth and the womb. In others they are the conveyors of the dead, as in the story of the lassos Rider. In fact, one myth tells that dolphins once were men and were turned into dolphins by Dionysus.(1)

If we look at one function of a myth, we see that it can be an act of interpretation of some natural phenomenon. As humankind has changed through time, so have the subjects of our mythology. If our culture is a screen through which we view the world, myths are important sources for how a society thinks. Since it is the nature of humankind to explain the world, myths are still being created today. It is important for students to understand that some ancient myths are the basis for present day beliefs.

I am concerned for the present state of humankind, and for the future of the earth, both of which are inextricably linked. I feel that our consciousness of these links have become fragmented. I also feel that it is one of the jobs of education to aid young people towards an understanding of their relative place on earth:

their relative place in time(past, present, and future), their relative place in consciousness and intelligence, their relative economic position(What does the transfer of money mean? Where does our food come from?). Time is an expensive commodity. I feel that we can not afford the luxury of wasting lessons learned from the past. A good knowledge of our origins is a necessity.

Since man is at present responsible for making decisions that ultimately may determine the fate of the earth and its population, I am concerned about the general public's lack of knowledge of the natural environment. Dr. Steven Kellert from Yale University has been doing a study on Americans and animals, particularly in regard to endangered species. It is a study in inconsistency. He has found that in general, Americans feel a considerable affection and concern for animals but that they know little about natural history and are little attuned to the ethical issues devolving from the use and treatment of animals by human beings. Furthermore, by polling a random sample of 3,107 people, Kellert found that the most common attitudes felt towards animals are humanistic, moralistic, utilitarian, and negativistic.(2) The conflicts in the findings are obvious, and this dichotomy is disturbing. Curricula that can educate young people about the natural environment and help them to clarify their feelings towards it is the first step in healing this situation.

The method of teaching a subject is as important as the subject itself; as Marshall McLuhan states in his book, *The Medium Is The Message*. Much is missed about a subject if one merely deals with its empirical side. I feel the teaching of science falls short in a few very important places. Scientific knowledge presented to the general public without a broad base is meaningless. It becomes meaningful when an initial common ground is reached and when the educator then brings the learners to new ground. A broad base is made up of issues in history, social studies, art, politics, economics, and science.

During the first part of this course I intend to infuse readings in classical mythology with studies of ancient pictorial representations of whales and dolphins. Also, I want students to express themselves through art as well as through discussion and writing. I feel that secondary education often concentrates too much on empirical data and the written word while neglecting the need of students to express themselves through art.

I am disturbed that in many schools readings in classical literature are no longer a part of the curricula. How is one to gain an understanding of our past without such vital knowledge?

Because this unit starts with readings in mythology, the student may gain insight into how civilizations prior to ours have viewed cetacea. In fact, most writings on cetacea quote Greek and Roman classical writing up until the 1800's and 1900's, when additional information was gathered through whaling expeditions. The artists of these later periods also used the descriptions of cetaceans from these earlier writings as the anatomical basis of their art works.(3) By a combination of the reading of ancient mythology with pictorial representations, a wealth of knowledge may be gained as to how the culture thought and expressed itself and insight may develop into where our culture has formed some of its preconceptions.

The discussion up to this point may have brought the reader to this question, 'If she is concerned with developing curricula to:1. aid the students to gain insight in their relative place on earth, 2. teach in multidisciplinary units, 3. increase the student's knowledge of the workings of the natural world, why is she doing so with marine mammals as a subject?'

One of my main reasons is that I teach for a high school that uses the marine environment as a focal point for traditional high school subject material. The ocean is the great equalizer. On her, we all are equal. Relativity is a bit easier to contemplate when one is surrounded by an unfamiliar medium. So my subject material would naturally concern some aspect of the sea. In the second place, through my previous investigation of cetacea, I

have found them to be one of the perfect subjects through which to gain my objective of teaching a multidisciplinary unit.

The reader should consult the paper accompanying the slide show on deposit at the Yale-New Haven Teachers Institute Office for a more thorough discussion of human and cetacean intelligence. However, to give a brief overview, two beings with highly intelligent brains have evolved on the earth: man on the land and cetacea in the sea. The following is a brief discussion of the anatomical and behavioral evidence of cetacean intelligence.

One index of brain development is the ratio of brain weight to body weight, termed the cephalization of the animal. In regard to this ratio whales, dolphins, and humans stand next to one another on the cephalization coefficient scale. Of course, this criterion is not the only factor we can consider; if it were, elephants would also be included in this discussion of the higher intelligent beings. Intelligence as demonstrated by behavior must also be included. The communication systems of man and cetacea are far more developed than in the elephant. Examples of these systems will follow later.

Both man and cetacea have the same basic parts of the brain; the old or reptilian brain; the paleomammalian brain; and the neocortex or neomammalian brain. The neocortex is the convoluted gray layer covering the cerebral hemispheres. In man, the cerebral cortex takes up almost one-half of the brain. This, along with the degree of cortical lamination, have become accepted criteria for judging brain advancement and complexity of thought process.(4)

There are many old whalers' and fishermen's tales about the intelligence of cetacea encountered in the sea. One such tale was related to Dr. John Lilly by a scientist visiting him at the Whaling Institute about the intelligence of *Orcinus orca*, the killer whale. During the whaling season in the Antarctic a group of several thousand orcas were playing with a fleet of commercial fishing boats. They were killing the fish near the boats, and the fleet could catch no fish. The fishermen radioed the whaling fleet for assistance. The fleet sent over a few boats armed with harpoon guns. One fired and killed one of the orcas. Within half an hour all the whales disappeared from the vicinity of the whaling boats within a twenty five mile radius. However, fishing boats which were not aided by the whaling boats were still being bothered by the whales. What is of special interest in this story is that both the fishing and whaling boats were World War II Corvettes. The only distinctive difference was the harpoon gun mounted on the bows of the whaling boats. For the whales to differentiate between the two, and to tell their fellow orcas about it, entailed some mode of communication. This communication would be different from the kind displayed, for example, by a school of fish when encountering some dangerous phenomenon. Here, the lead fish would somehow say, 'Turn right!' All would turn right; the command is quick, the execution immediate. A contrasting type of communication must have gone on between the whales. The dying whale or observers would emit a message such as, 'There's a thing sticking out of a few boats which can kill us and haul us in. Avoid all boats with this projection!' The command is fairly complicated. It also requires the belief of the hearers, their ability to differentiate between the two boats, and a memory because they avoided the whaling boats for many hours.(5)

Nature programs for success, and does so through evolution. Through natural selection, cetacea have come to have their present day body and brain structure.

Because of the absence of fossil evidence, it can only be surmised how the transition from a terrestrial to an aquatic environment took place. It is believed that this occurred at least 40 million years ago. Changes in body structure to insure survival included adaptation to feeding, breathing, locomotion, communication, and reproduction in an aquatic environment. These first cetaceans had small and primitive brains. (6) What selection pressures were present that led to a brain size comparable with ours? Some answers can be found

by examining the Amazon River Dolphins living today.

Modern river dolphins range far inland along flooded river beds during the tropical rainy season in search of fish. In order not to be stranded inland where the waters recede, they must develop and retain in their memory detailed topographic maps. Also, to maintain intraspecies communication, they have developed echolocation and tactile senses because the waters are very muddy and sight is severely limited. The brains of the river dolphins are approximately the size of *Homo erectus*, the first real human who appeared about 2 million years ago. In contrast, the river dolphin had his present day brain size 30 million years ago.

The river dolphins remained in the rivers and maintained the same brain size. The cetaceans who returned to the sea developed even larger brains. Certainly some of this development was due to adaptation to the new environment. But the stresses of the sea environment were not demanding enough to account for this magnum growth in brain size. Another reason was probably the greater distances their communication systems had to deal with in the vast oceans. It is also theorized that this increase was due to social and sexual selection. The senses of communication necessary for the river dolphins to survive in their environment were a perfect template for further development of intraspecies communication and the development of intelligent societies. (7)

In contrast, let us look at man's evolution. Man and ape evolved from a common ancestor. As in the cetacea, the brain was not totally reorganized, but the newer parts of the brain (e.g. the paleomammalian over the reptilian) layered over the older. When man moved from the jungle to the plains his brain size increased considerably. This growth of the brain enabled him to survive, make tools, and communicate. But our brain evolved much faster than that of the cetacea. At the time when whales and dolphins had brains comparable to their present size, ours were the size of the tree shrew, our earliest ancestor.

Both man and cetacea are capable of digital information exchange. 'Digital' means information exchange understood because of its sequence in time and space. Using digital information exchange, man or cetacea, through simple sounds in elaborate sequence, exchanges information concerning actions and objects. Peter Warshall theorizes that cetacea also use analog communication systems. This system would appear more like an hieroglyphic and through complex sounds perceived as a unit, could communicate more information, the content of which is probably subjective items such as emotion.(8)

Except when dolphins are locating objects by echolocation, their language consists of complex sounds which are perceived as a unit. This is much the way that our human sight is oriented. We perceive complex simultaneous information in analog pictures. Thus, cetacean speed is more like our music. And for a dolphin to follow our pattern of speech would be something like our trying to follow a movie with the frames run at the speed. at which they were shot.(9)

In summary, cetacean and man have brains of approximately the same relative size and complexity. Evidence of cetacean intelligence has been observed by man. Because of different environmental pressures, the cetacean brain has evolved to suit different purposes as reflected in their brain organization. Much of the cetacean brain is concerned with intraspecies communication. The cetaceans have had their large and complex brains much longer than man has. They have been present at the sea's edge where man has evolved. With their elaborate communication system, what must their myths about humans contain?

But, since we have not developed the ability to communicate with them to compare myths, let us look at what our myths have to tell us about whales, dolphins, and ourselves.

Early accounts of whales and dolphins show us that man ranked them among the world's wondrous creatures.

Images of dolphins appear on the walls of the 'Queen's Megaron' in the Royal Palace at Knossos in Crete, and were painted somewhere around 2000 to 1500 B.C. Also, some whaling activity appears to have occurred around 1000 B.C.

The Greeks' knowledge concerning cetacea came from actual meetings with them in the Mediterranean Sea and from tales of other cultures which practiced whaling. The appearance of a 10-foot apparently smiling creature racing a boat would elicit different feelings and hence different tales from the viewers from the appearance of a 70-foot creature spouting vapors and then submerging. Hence many early myths of dolphins represent them as the merciful and friendly side of the deep and dangerous ocean. Those of whales, although still showing fascination, tend to stress the more fearful and unknown side of the sea.(10)

During the sixth and seventh centuries B.C. the Homeric Hymns were composed. Dolphins appear in the Homeric Hymn to Dionysus and to Pythian Apollo. In the Homeric Hymn to Dionysus, we see how the Greeks explained the dolphin's cheerfulness, intelligence, and apparent love for people. The Hymn also explains how dolphins came into being: dolphins once were men. The dolphin can be seen as representing redemption. Dionysus could have let the evil men drown but instead turned them into good dolphins. (11)

The Hymn to Pythian Apollo tells how Apollo, in the guise of a dolphin, lay on the deck of a Cretan ship, guiding the sailors to shore where they founded his temple at Delphi. Numerous accounts of dolphins leading ships through treacherous waters have been documented through history.(12)

After dolphins came into being, as described in the Homeric Hymns, the first to learn of their usefulness was Poseidon, the god of the ocean. Poseidon was looking for Amphitrite to make her his wife. She had been hiding from him in a cavern in the sea. A dolphin found her for him and Poseidon showed his gratitude by setting in the sky the constellation of the dolphin.(13)

The first story of a dolphin rescuing man is told by Herodotus in the fifth century B.C. Here, Arion, a musician, hires a crew to transport himself and his riches to Corinth. However, when they reach the open seas, the sailors plot to steal his fortune and force him to cast himself into the sea. He plays his final song upon the quarter deck and flings himself into the sea, where he is carried on the back of a dolphin to safety. Incidents of man being rescued by riding on a dolphin's back and of attracting dolphins and whales by music are well documented.(14)

The themes in these myths may in part be the basis for the current popularity of cetaceans.

The student will gain an appreciation of ancient cetacean mythology and an understanding of its possible influences on today's beliefs by the following strategies: 1. reading aloud together in class appropriate myths 2. viewing ancient pictures of cetacea to see what they tell us 3. discussing the myths' effect on present day beliefs.

These are the underlying strategies for each curricula plan. Most plans, however, have separate strategies of their own. The central objective is to teach this unit in a multidisciplinary manner

The first lesson plan, The Homeric Hymn to Dionysus, has no separate strategy since the student first needs to gain basic background information; this is where the teacher should concentrate his or her attention.

The second lesson plan, Poseidon and the Dolphin, includes an infusion lesson in celestial navigation. The

students will gain further appreciation for how the Greeks viewed the world by locating the constellation that they believed Poseidon dedicated to the dolphin.

The final lesson plan presented here concerns the myth of Arion as told by Herodotus. Here the students will create a myth and illustrate it by carving a linoleum block. As an extended activity, the students can do readings along the same theme of the myth. The writings of Bullen (15); Lilly (16); Pliny the Elder (17); Aelian (18); and the story of Jonah (19); are recommended. All concern cetacea carrying or rescuing a person.

The reader should view these three lesson plans as the beginning of an extended unit on dolphins and whales in myth and literature, which is itself a part of a larger unit on dolphins and whales. Suggestions for further readings will be found in the teacher's bibliography. Also, since the same readings are recommended for teacher and student, only one annotated bibliography is presented.

Lesson Plan I: The Homeric Hymn to Dionysus

Concept:

—In all myths, dolphins represent the merciful side of the deep and dangerous ocean.

Marine Concept:

—Dolphins were land mammals that long ago chose to return to the sea. X-rays of dolphins' flippers show vestigial hand bones.

Objectives:

—For students to become familiar with a Greek myth, an important basis of some of today's beliefs.

—To increase the student's knowledge of the natural environment.

—For students to see that the Dionysus myth helped the ancient Greeks to explain the dolphin's cheerfulness, intelligence and apparent love of people (dolphins once were men).

—For students to see that since in the myth, evil men were transformed into good dolphins, the dolphin represents redemption.

Teacher Preparation:

—Teachers locate and read the Homeric Hymn to Dionysus(20)

—Teachers borrow accompanying slide show from the Yale New Haven Teachers Institute Office to show picture of the Dionysus Cup created by Exekias about 540 B.C.

Materials:

—Homeric Hymn to Dionysus

—Accompanying slide show

Procedure:

- Have students read aloud the Homeric Hymn to Dionysus.
- Show appropriate slides or pictures.
- Lead discussion emphasizing concepts and objectives of this lesson plan.
- Time required is about one to two days.

Lesson Plan II: Poseidon and the Dolphin

Concept:

- In all myths, dolphins represent the merciful side of the deep and dangerous ocean.

Marine Concept:

- Numerous accounts of dolphins leading man to underwater objects have been documented.

Objective:

- For students to become familiar with a Greek myth, an important basis of some of today's beliefs.
- To increase the student's knowledge of the natural environment, the dolphin's 'usefulness to god or man is demonstrated.
- For students to gain further appreciation of how the Greeks viewed their world by locating the constellation of the Dolphin.

Teacher Preparation:

- Teachers locate and read the myth of Poseidon and the Dolphin. (21)
- Teachers become familiar with the Greek Gods mentioned in the myth.
- Teachers borrow accompanying slide show.
- Teachers become familiar with teaching a lesson on celestial navigation and the materials needed as listed under Sub Lesson Plan II. (22)

Materials:

- Story of Poseidon and the Dolphin.
- Accompanying slide show from Yale-New Haven Teachers Institute Office.

Procedure:

- Have students read aloud the myth of Poseidon and the Dolphin.
- Lead discussion emphasizing concepts and objectives of this lesson plan.
- Time required is about three days.

Extended Activities:

- Have students become familiar with the research concerning dolphins locating underwater objects by sonar, as told by Lilly. (23)

Lesson Plan Sub II

Objectives: (Can be combined)

- Locate and observe Big Dipper
- Locate and observe North Star
- Locate and observe Little Dipper
- Locate and observe the Dolphin

*Finding the North Star and the Little Dipper are not necessary for finding the Dolphin but can be justified as good practice for finding the more difficult constellation Delphinus.

Teaching Materials:

- Book on celestial navigation. (24]
- Slide Projector
- Screen
- Prepared slides

Actual observations:

—A very clear night is needed to see the complete Dolphin. The North Star and both Dippers are among the easiest celestial observations that can be made. First find the Big Dipper. The way to do this is to know its shape. It will stand out enough for the student to differentiate it from the others.

(figure available in print form)

To find the North Star (Polaris) draw an imaginary line between the two stars in the Big Dipper that are at the

farther end of the bowl from the handle. These two stars are often called 'pointers'. Draw this imaginary line from the bottom of the cup towards the top of the cup. Extend this line in the same direction, five times the length of the original line. This extension will intersect a fairly bright star, which is Polaris or the North Star. Polaris as the pole star is almost exactly at the North pole; that is why it is called the North Star. In this latitude it is almost halfway up in the sky from the horizon. B facing the Pole star. Polaris, one can determine N.S.E.W. without a compass; right is east, left is west, and behind the observer is south, because the North Star is so near the north pole and the earth rotates around an axis which passes through the north and south poles, the rest of the stars in the sky appear to rotate around the North Star in a counterclockwise direction once each twenty-four hours.

—Once the North Star has been located, the Little Dipper can easily be found because the North Star is the last star in the handle of the Little Dipper.

—The Dolphin. First find the North Star. To the east is the Milky Way bisecting the sky from north to south. The Dolphin is seen clustered on the eastern side of the Milky Way. Remember that as the Earth rotates, the stars will change position in the sky. The Dolphin, although always east of the Milky Way, is not always in the same place in the sky.

—The Dolphin has five brighter stars and five point stars. The constellation is visible because its stars are densely packed together and form a distinct shape.

(figure available in print form)

Lesson Plan III: The Story of Arion

Concept:

—In all myths dolphins represent the merciful side of the deep and dangerous ocean.

Marine Concept:

—It has been documented that dolphins have aided mankind in the ocean in times of peril.

—All cetacea are attracted to man's music. The structure of our music is similar to that of their own communication system.

Objective:

—For students to become familiar with a Greek myth which is an important basis of some of today's beliefs.

—To increase the student's knowledge of the natural environment.

—For students to see that in this myth, a dolphin rescues a good person from evil. Thus dolphins symbolize compassion, salvation and justice.

—For students to express themselves by creating a myth, and then by illustrating it.

Teacher Preparation:

- Teachers locate the story of Arion by Herodotus. (25)
- Teachers become familiar with the Greek gods mentioned in the myth.
- Teachers borrow accompanying slide show.
- Teachers become familiar with teaching a lesson on linoleum block printing and the material needed as listed under materials in this lesson plan.

Materials:

- Story of Arion as told by Herodotus.
- Accompanying slide show.
- Materials and procedure for linoleum block printing as described in *Linoleum Block Printing* by Francis J. Kafka or another appropriate source. (26)

Procedure:

- Have students read aloud the story of Arion by Herodotus.
- Show slides.
- Lead discussion emphasizing concepts and objectives of this lesson plan.
- Have students create a myth.
- Have students create a linoleum block print or other accompanying illustration.
- Time required is about two to three weeks.

Extended Activities.

- Have students read a dolphin story as recounted by Frank T. Bullen, author of *The Cruise of the Cachelot*, concerning the rescue of beautiful maidens by dolphins as told to him by an old
- Have students read accounts of cetacea's affection for man's music as told by Lilly in *Lilly on Dolphins*. (28)
- Have students read the story of Jonah. The whale in this story can be seen as representing salvation since God does not drown Jonah but has the whale carry him to shore.(29)
- Have students read various versions of *The Boy and the Dolphin* by Pliny the Elder, (30), and Aelian. (31)

Footnotes

1. Joan McIntyre, *Mind In The Water*, passim.
2. Nancy Heneson, 'Americans and Animals,' Orion volume 1 (1982): 24-2.
3. John Kelly, *The Great Whale Book*, p. 30.
4. Sterling Bunnell, 'The Evolution of Cetacean Intelligence' in Joan McIntyre's, *Mind In The Waters*, pp. 52-59
5. John Lilly, *Man and Dolphin*, p.
6. Sterling Bunnell, 'The Evolution of Cetacean Intelligence' in Joan McIntyre's, *Mind In The Waters*, pp. 52-59.
7. *Ibid.*
8. Peter Warshall, 'The Ways of Whales' in Joan McIntyre's, *Mind In The Waters*, pp. 110-119.
9. Sterling Bunnell, 'The Evolution of Cetacean Intelligence', in Joan McIntyre's, *Mind In The Waters*, pp. 52-59.
10. John Kelly, *The Great Whale Book*, pp. 29-41.
11. Eleanore Devine and Martha Clark, *The Dolphin Smile*, pp. 3-5.
12. *Ibid*, p, 6,
13. Antony Alpers, *Dolphins: The Myth and the Mammal*, pp. 5-6.
14. Eleanore Devine and Martha Clark, *The Dolphin Smile*, pp. 11-13.
15. Frank Bullen, 'The Spectator' in Eleanor Devine's, *The Dolphin Smile*, pp. 92-97.
16. John Lilly, 'The Dolphin in History' in Eleanor Devine's *The Dolphin Smile*, pp. 251-253.
17. Pliny the Elder, 'Natural History' in Eleanore Devine's, *The Dolphin Smile*, pp. 23-27.
18. Aelian, 'On the Characteristics of Animals' in Eleanore Devine's *The Dolphin Smile*, pp. 42-50.
19. A.M. Tomlinson, *Great Sea Stories of All Nation*, pp. 76-78.
20. Eleanore Devine and Martha Clark, *The Dolphin Smile*, pp. 3-5.
21. *Ibid*, pp. 11-13
22. Warren Norville, *Celestial Navigation*, passim,
23. John Lilly, 'The Dolphin In History' in Eleanore Devine's, *The Dolphin Smile*, pp. 251-253.
24. *Ibid.*
25. Eleanore Devine and Martha Clark, *The Dolphin Smile*, pp. 11-13.
26. Francis J. Kafka, *Linoleum Block Printing*, passim.
27. Frank Bullen, 'The Spectator' in Eleanore Devine's, *The Dolphin Smile*
28. John Lilly, 'The Dolphin in History', in Eleanore Devine's, *The Dolphin Smile*, 251-253.
29. A.M. Tomlinson, *Great Sea.Stories of All Nations*, pp. 76-78.
30. Pliny the;Elder, 'Natural History' in Eleanore Devine's *The Dolphin Smile*, pp. 42-50.
31. Aelian, 'On the Characteristics of Animals' in Eleanore Devine's *The Dolphin Smile*, pp. 42-50.

Teacher and Student Bibliography

Alpers, A: Dolphins. *The Myth and the Mammal*. Houghton Mifflin Co: Boston, 1961. An excellent anthology of dolphin mythology and ancient natural history writings. Contains an excellent bibliography to locate original writings. Good source for extended reading activities. Well suited for teachers and students above the ninth grade reading level. Out of print; however, it can be obtained through Yale libraries or through a local library on interlibrary loan.

Devine, E. and Clark, M. *The Dolphin Smile*. Macmillan Co: N.Y., 1967. An excellent anthology of dolphin mythology, natural history, and information on contemporary dolphins. Its short stories are well suited for one lesson classroom use. Contains an excellent bibliography to locate original writings.

Ellis, R. *The Book of Whales*. Knopf Co: N.Y., 1980. While mainly a book on the natural history of whales, the introduction contains useful information on whale mythology. It is beautifully illustrated.

Ellis, R. *Dolphins and Porpoises*. Knopf Co: N.Y., 1982. Although this is mainly a book on the natural history of dolphins, the introduction contains useful information on dolphin mythology. It is beautifully illustrated.

Heneson, N. 'Americans and Animals' *Orion*, volume I, (1982).

Kafka, F. J. *Linoleum Block Printing*. Keystone Books: London.,1977

McIntyre, J. *Mind In The Waters*. Charles Scribner's Sons: N.Y., 1974. An excellent anthology of stories of appreciation on whales and Dolphins. Well suited as a reference for teachers and for students reading on a senior high school level. Good black and white illustrations.

Norville, W. *Celestial Navigation Step by Step*. International Marine Pub. Co: Camden, Maine, 1973. Good introduction to celestial navigation.

Rose, H. J. *A Handbook of Greek Mythology*. E. P. Dutton: N. Y., 1959. Excellent guide to the world of classic myth and epic.

Scheffer, V. B. *The Year of the Whale*. Charles Scribner's Sons: N. Y., 1969. A classical natural accounting of a sperm whale's life over a one year period. Excellent reading for seventh grade and up.

Tomlinson, H. M. *Great Sea Stories of All Nations*. Spring Books: London, 1967. Excellent anthology of sea stories containing synopses of such stories as Jonah and Moby Dick. An excellent source of extended reading activities for teachers and students.

Teacher Resources

The Connecticut Cetacean Society

Contact: Lucinda Hannon

P. O. Box 9145

Wethersfield, CT 06109 651~8696

Broad spectrum of educational materials on cetacea in natural history, habitat range, different species, and biology. Slide show and text on this material may be purchased for \$45.00. Membership price is \$15.00 per year and entitles members to attend meetings and receive newsletter,

Local Libraries

Many have books on whales and on mythology. Can obtain hard-to-locate books through interlibrary loans.

Mystic Aquarium

Mystic, CT 06355

563-9631

Live cetaceans and shows daily. Marine educational books for sale.

Individualized programs for classes may be scheduled. Small on-site library contains books on marine biology.

Mystic Seaport

Mystic, CT 06355

572-0711

Maritime store and research:library containing displays, books, and documents on whaling. Free to the public. Large outside museum showing traditional boats and whaling exhibits.

Northern New England Marine Education Project

206 Shildes Hall

University of Maine

Orono, ME 04469

Prepared curricula on whaling multi-disciplinary studies as well as other marine curricula, e.g. marine art, marine animals, ships and navigation. Write for information and prices.

Schooner, Inc.

60 S. Water St.

New Haven, CT 06519 865-1737

Contact: Deborah Turnbull

Provides teachers' workshops and sponsors whale watches. Also offers in-the-classroom, on-the-shore, and on-the-water marine education programs.

Virginia Institute of Marine Science

Glouster Point, VA 23062

attn: MEMS

A computerized bibliography of all marine curricula in the United States by subject and grade level. A \$5.00 search fee is required, Microfiche can be purchased or borrowed free of charge.

Web of Life

Carver, MA 617-866-5353

Conducts whale watches on weekends from April to October. Trips include a slide show and lecture on background, identification, and life cycles of whales and dolphins.

Whaling Museum

18 Johnny Cake Hill

New Bedford, MA 02740

617-997-0046

Maritime library containing books, journals, and other primary and secondary grade resources. Bibliography of whaling books mailed upon request. Free and open to the public,

Yale-New Haven Teachers Institute

53 Wall St.

New Haven, CT 06520

436-3316

Research library with books containing topics in mythology, literature and poetry. Class sets and materials available to New Haven Public School teachers. *Location of slide show and script on: whales and dolphins in Greek art and mythology, whaling and natural history.*

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