

CULTURE Cultures are often divided into 2 parts – the areas dealing with social structure – everything from the family up to complex governments; and symbolic aspects – religion, ethics, belief systems folklore and so on.

In the early days of anthropology the anthropologists were very involved with evolution – it was the “spirit of the times”. Lyell had postulated geological evolution, Darwin biological evolution and early social scientists were talking about the evolution of societies. Some of that is apparent in the developmental sequences from hunting and gathering through horticulture to agriculture.

Agriculture (with plow)



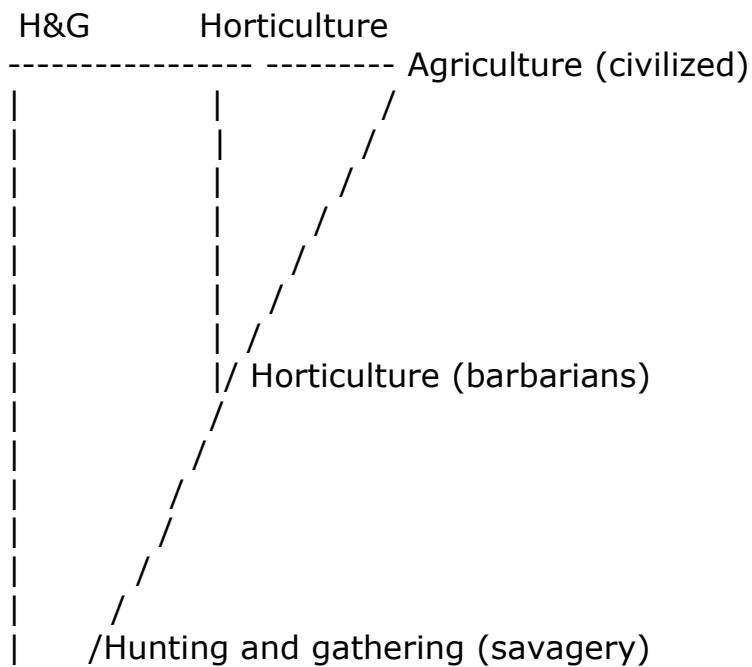
Horticulture (digging stick)



Hunting and gathering (bow and arrow, spears)



It was also felt that among some peoples, this development or evolution had not happened and so there were “survivals” – things that were held onto from the past so one could make a diagram showing this:



In general, Europe was seen as the apex of development (even to the point of requiring an alphabetic writing system so as to rule out Asia cultures which use either characters or syllabaries.)

While the ocean is a major primary producer and sequester of carbon dioxide and many other things of great importance, the two most important aspects of the ocean to people in their everyday life are transportation and a source of food.

No society in the world eats all the edible material around them (i.e. can be eaten for nutritional value and is not toxic). In the USA people normally don't eat dog or horsemeat and generally stay away from insects and worms and grubs

No society in the world seems to recognize human flesh as ordinary food, so cannibalism on a regular basis seem unknown although it does occur under conditions of extreme deprivation and ritually. Even in Western society, the eating of the body and blood of Christ during communion is an example of what has been called "symbolic cannibalism"

We get many foods from the ocean although the vast amount of food people eat comes from the land. As populations increase, they often seek to build on relatively flat land which is also sought after for agriculture. So as populations increase and space to farm decreases there develop many problems. In effect a smaller amount of land available for planting is being asked to produce more and more food. This

often requires fertilizers to be used which then become involved in run offs to the ocean where the result is algal blooms leading at times to dead zones.



Mollusks



crabs



Lobster



seal



Tuna

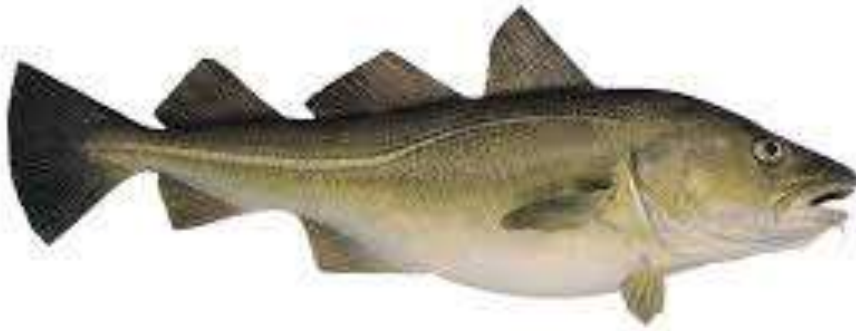


Sperm whale

There was a time when people thought there were unlimited quantities of fish in the ocean. Not just fish, but all kinds of food items:



The Grand Banks were known for their “infinite” numbers of cod fish. People used to say they were so plentiful you could walk on their backs across the water. By 2000 they were nearly extinct.



Fishing has been practiced by humans for more than 100,000 years. It has generally been considered a "side production method" compared to the use of the land. After all people are land living animals and as a result tend to be more involved with plants and animals which are also terrestrial. The earliest humans got their food from a process called "hunting and gathering". In these cultures people act more as passive producers of food. They caught what animals appeared and gathered whatever vegetable matter was available.

After many millennia people began to become more active in food production and began to domesticate animals and plant crops. Initially this appears to have been a kind of small scale gardening done with a "digging stick". This level of food production is called "horticulture"

Following that people became more intensive in their production and began to raise animals for food and plant more extensively, using the plow. This more complex level is known as "agriculture".

Fishing and the use of marine life as food is generally ignored since many peoples do not live by the ocean, and those who do, may not venture to far out on it. So the food from the ocean contributes only a small amount to people's diet.

Some cultures are more involved with the ocean than others. Japan, for example, has little land for grazing. It is largely mountainous and what level land there is has been used for the building of cities. Japan, like Oceania (the Pacific islands – Polynesia, Melanesia, and Micronesia) has used the ocean the way that Americans have used the Great Plains. Both the Pacific cultures and Japan are very similar in

that way. While they do grow food as well, there is much more use of sea food than there is say of the Cheyenne or Arapaho who live on the Plains in the U.S.

However, there has certainly been a similar development in fishing techniques among many people that in a sense parallels that of the people who have developed more agrarian economies.

One might start with the catching of fish either by hand or with a spear or a hook. These techniques generally involve catching a single fish at a time and basically "hunting" fish and "gathering" plant life or some sessile or near sessile animals.





Later people found ways to catch many fish at a time by constructing nets or building weirs. This is perhaps akin to "horticulture".



Finally, there is “fish farming” in which people actual build a kind of “fish pen” in which fish can be raised and in effect “farmed”.

This last approach has developed a number of terms to describe it:

FISH FARMING:

Mariculture: Raising fish in the ocean (salt water)

Aquaculture: Raising fish in fresh water



In some cases this has been productive, but the fish are being raised in water which may be polluted in which case there can be problems with the fish. Another approach has been to raise fish in tanks where there are plants. The fish are raised in pure water with some nutrients added. The fish eat the plants which are also oxygenating the water. The fish produce carbon dioxide from breathing and excrete materials which nourish the plants. The plants photosynthesize and produce oxygen for the fish (along with food). The tanks become closed ecological systems. Fish raised in this way for food can be raised almost anywhere and as a result do not have to be transported great distances to land locked populations.



As populations of human grew and continue to grow, there is a greater need for food to feed the growing numbers of people. This has resulted in a number of changes on the ways in which people have dealt with the need for more and more food. On land there is a great deal of fertilizer used to produce more food from the same amount of ground (This parallels the problems of "efficiency" in which less human energy is needed to produce the same results, or the same amount of human energy is used to produce greater results (remember the spear, adl adl and the bow and arrow).

Earliest people did their fishing near the land. Fishing and navigation are tied together. You can sail out of sight of land and get fish, but if you cannot find your way back, it is meaningless.

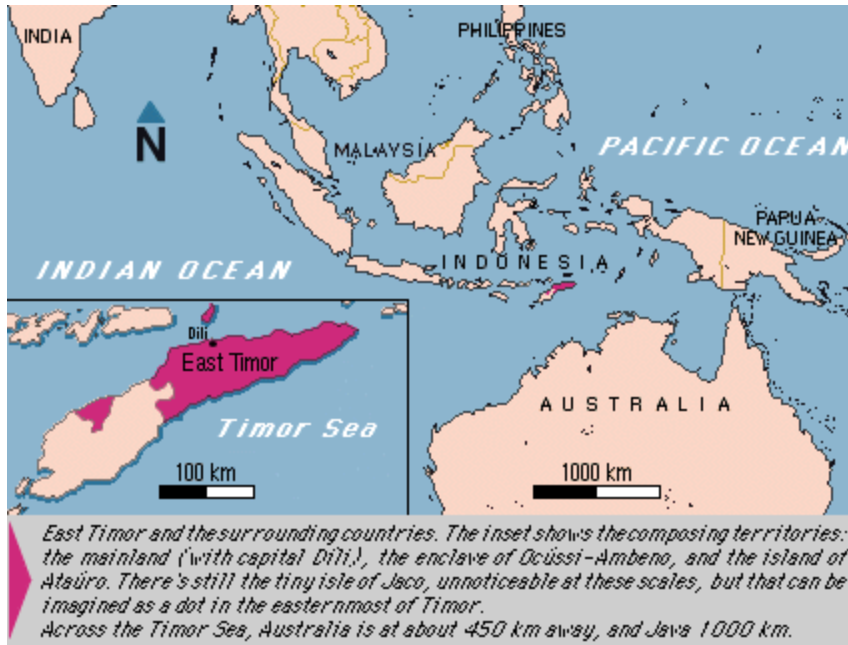
About 40,000 years ago in East Timor Indonesia there is strong indication that people were traveling into deep waters out of sight of land and fishing.



Sites show large numbers of fish bones that come from tuna, a deep ocean fish indicating that people were traveling far out into the ocean and catching large fast moving fish. The technique is not known, but the number of the bones indicates that this was not an accidental catch of one or two tuna.

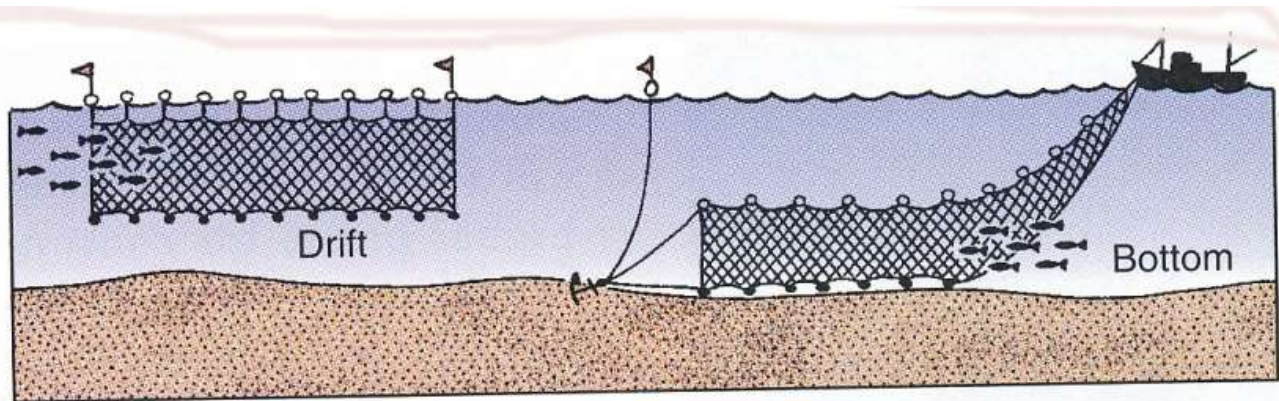


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More recently a number of techniques have been used for catching large numbers of fish. These are:

Gill nets



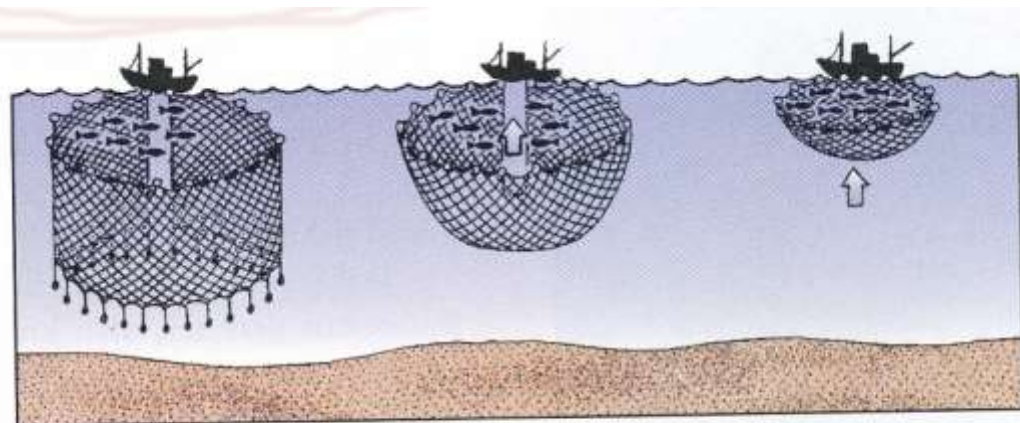
(a) Gill nets

Gill nets are not restricted to commercial fishing. They date well back to antiquity. The nets can be made with different size openings. The larger the opening, the larger the fish that is caught (that is smaller fish can swim through larger ones cannot).

Currently the size of the openings and the strength of the netting are heavily regulated. This is done to prevent some "over fishing" (taking too many of the same kind of fish) and trying to avoid catching many kinds of fish which may not be what is wanted (by catch)

Some materials used in making nets is resistant to decay, and such equipment when it breaks loose, continue to "fish" even though there are no people to catch the fish and use them for food. This catching of fish by fishing equipment that has broken loose is known as "ghost fishing"

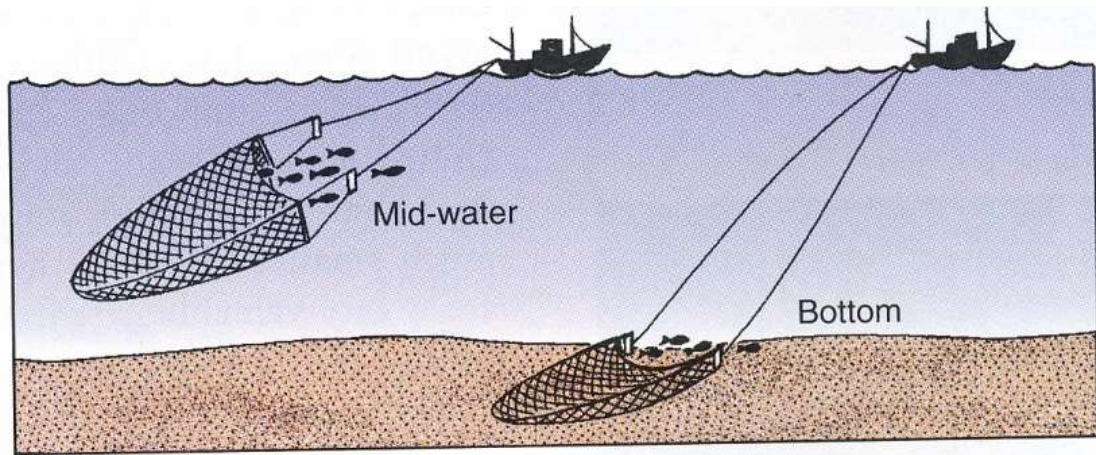
Purse seine



(b) Purse seine

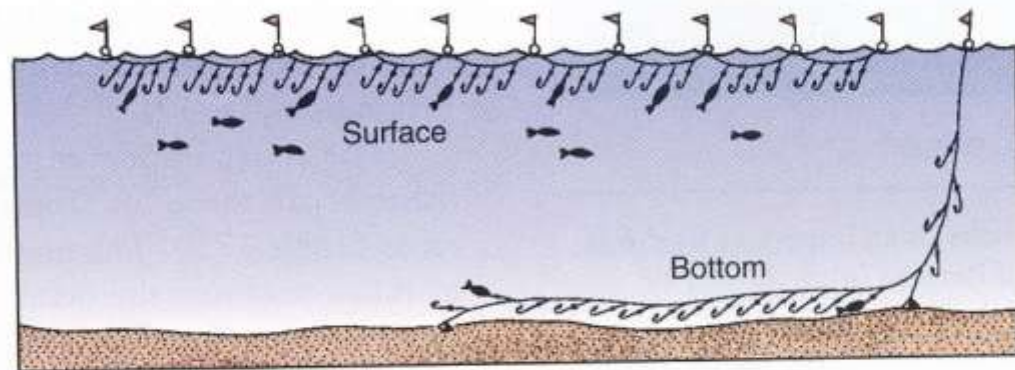


Trawls



(c) Trawls

Long line



(d) Longline

SOME PROBLEMS WITH FISHING

Who owns the oceans????

There are a number of problems with fishing in the ocean since the oceans are “free”. But with a 200 mile limit now in use, more fish fall within the different countries’ borders and foreign vessels may try to fish there despite the laws.

In America, there were a number of problems with Russian ships trawling in American waters and destroying the ocean bottom, thereby upsetting the habitats of much marine life.

Maximum sustainable yield:

The greatest catch of a species that will ensure the long term viability of the species.

Recruitment overfishing:

Recruitment overfishing occurs when the mature adult population (spawning biomass) is depleted to a level where it no

longer has the reproductive capacity to replenish itself—there are not enough adults to produce offspring. Studies show that within 15 years of a new fishery opening about 80% of the largest fish are taken.

Growth overfishing:

Growth overfishing occurs when fish are taken too small, before the fish have grown to a size that produce the maximum yield. This reduces the value of the catch since if the fish were to grow, the individual fish would weigh more and bring a higher price in the market.

Overfishing occurs when many fishermen become attracted to the same new fishing industry. As a result many people move in to take the fish. The numbers start to decline. Best option: stop fishing for that fish. Does it happen? No.

Do fishermen understand these problems?

Yes, but they have families to feed and bills to pay. Often they have taken out loans for boats and equipment.

Among the problems found with these techniques is the problem of "BY CATCH". Large fishing vessels generally go after one or two types of fish, but

While originally it was thought that the ocean had an exhaustible supply of food, it appears this is not the case. Fish supplies have been dwindling and several species have become extinct or reached near extinction levels of population.

There is a possibility that some of these "near extinction" populations may rebound. The California Gray whale which was on the endangered species list has been removed from the list. The North Atlantic Right Whale has a very debatable future and while there are many regulations in effect concerning the whale (how close one can come to one of them and restricting the speed of boats in the areas where they are found), there are some who feel that the species may not recover. Among the factors affecting recovery are:

1. How small has the stock become? Number of animals remaining
2. What is the age of maturation?
3. How long is the time from fertilization to birth (Gestation periods)?
4. How many offspring are there from a single mother?
5. How many times does the organism produce offspring i.e. what is the death rate relative to number of times animal mates? (salmon die after spawning)
6. What is the survival rate of offspring?

7. What factors impact mating choices?
8. What other factors affect the mating and embryology? (changes in temperature, salinity, etc. Frog eggs produce more females than males as temperature rises).
9. Consider sex ratios. # of females is more important than the # of males in terms of reproduction numbers. With humans, 1 man with 10 women can yield 10 children per year. 10 men with 1 woman can yield 1 child per year (this is why wars do not significantly impact the growth of populations in most cases since there were more male soldiers and so populations after the war were skewed in terms of more women than men. By the next generation that skewing was basically gone.

How would this affect your ideas about things like the Loch Ness monster?

1. How large a breeding population would you need to keep it going?
2. How many are there? How many different "Nessies" have been seen?
3. How long have there been reports of the "monster"?
4. Are there answers to the first three questions asked about the size of the breeding population of "Nessies" in the Loch? What does that tell you?

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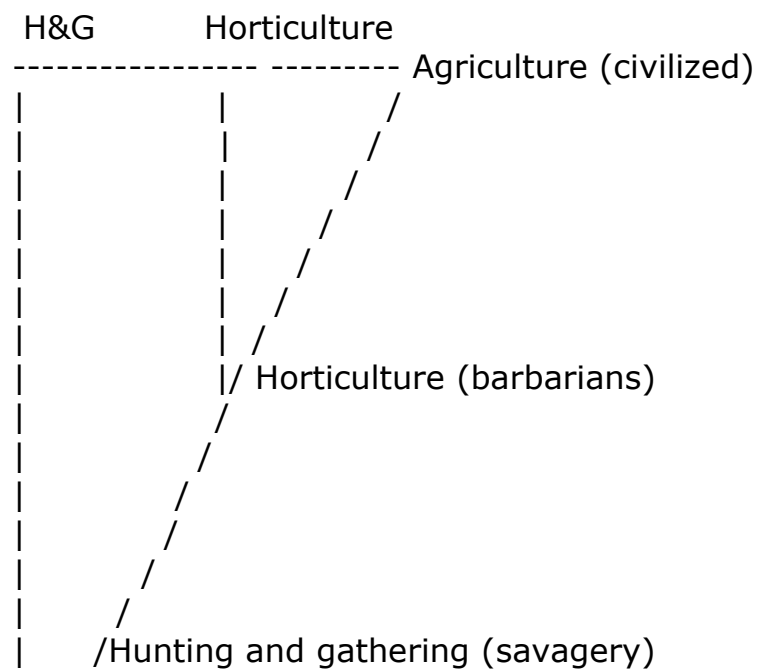
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Agriculture

Horticulture

Hunting and gathering

It was also felt that among some peoples, this development or evolution had not happened and so there were "survivals" – things that were held onto from the past so one could make a diagram showing this:



In general, Europe was seen as the apex of development (even to the point of requiring an alphabetic writing system so as to rule out Asia cultures which use either characters or syllabaries.)

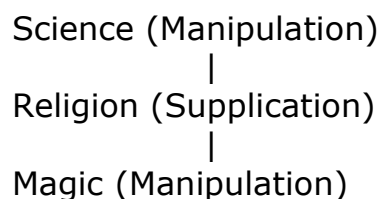
Any evolutionary sequence was virtually started by looking at what Europe did and then figuring the opposite and working out intermediary steps.

In the early days, an evolutionary sequence was developed that looked at magic, science, and religion. It was held that "science" was the apex, and the opposite must have been "magic". The reason for this was that science and

magic both dealt with cause and effect relationships. Science found the “real” cause and effect, while magic was a kind of pseudo science, looking at false cause and effect (if I plant this stone in my garden the crop will grow better). The intermediary step was religion.

The argument was made that “in the beginning” people saw cause and effect, but it was a false cause and effect. After a while, they determined that they couldn’t control what happened and then decided that the universe was under the control of some supernatural beings and all one could do was to try to get them to help. Magic was “manipulative” Do x and y follows. Religion was supplicative – You had to get the gods or spirits to help.

Finally people realized there is true cause and effect and that was science and so the universe could be “manipulated”. So the evolutionary system postulated a move from magic to religion to science.



The argument went that people discovered they did the required magical bits and nothing happened. They realized magic didn’t work so they gave it up. Then they discovered that religion, in the form of prayer or supplication didn’t work and they gave that up.

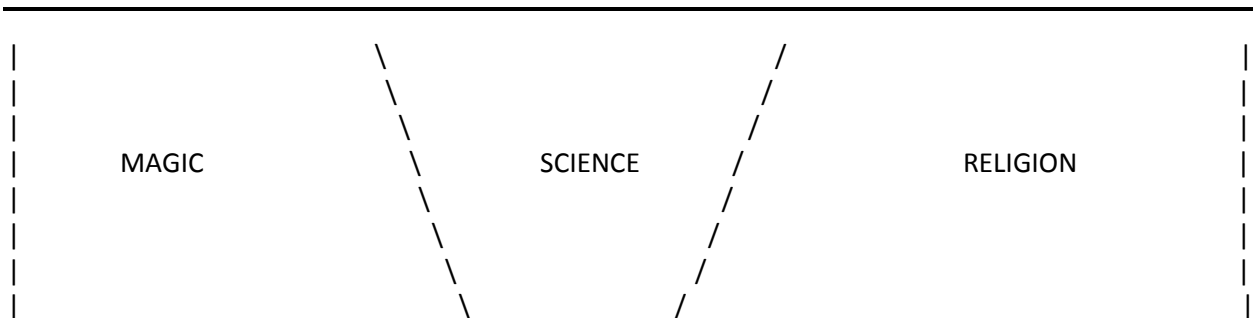
Then they went to science.

However, it was pretty clear that people who practiced magic and the magic didn’t work had ready explanations. “I did something wrong”. “Someone who had greater magic than I worked against me”. So why give it up?

Why would people give up prayer because their prayers went unanswered? Billy Graham (the evangelists and not the professional wrestler) said “There are no unanswered prayers. It’s just sometimes the answer is “no”. If, as happened in European based societies, you found magical practices and religious practices, these were viewed as “survivals” from an earlier age.

Bronislaw Malinowski, a Polish anthropologist who was living in London, decided the situation was wrong. He claimed that there were no societies found by reputable investigators that didn’t have all three. He saw the

division as being one of the world of the "sacred" which contained "magic" and "religion" and the world of the "profane" which contained "science".



Each culture has some of each but in different ratios of proportions. In the west, it would appear that science and religion are on something of a collision course since both are "explanatory". In other cultures this is not the case. For example, although Japan has both religion and science and both talk about the creation of the world, one is seen as a "symbolic" explanation the other as a physical explanation and one has nothing to do with the other, so the conflicts between the two common in the west are missing in Japan.

We can even see that there are serious differences between religion in Europe and the United States in their dealing with religion. Some analysts point to the strong fundamentalist base in the US as a result of the constitutional separation of church and state which did not occur in Europe. Europe had "national" religions "The Church of England", "The Church of Scotland" and so on. To practice a variation in the religion was not only heresy, but probably traitorous. In the US without a "national religion" fundamentalism and many, many variations developed. So you can see how historical developments can begin to impact on different cultures in different ways.

One of the questions that has been raised about magic has to do with how it works and when it is used. (One can also question moves from the profane to the sacred. Pellegrino Luciano points out that in Italy people seek medical advice for some illness. When that fails, there is a move to the sacred and people take part in processions and look for interventions from saints and so on. The move is also from "private" medical consultations to "sacred" more

public statements that tend to make one's position more likely to attract a kind of support network.

Magic is often seen as a kind of "last resort" or something to do when there is a great deal of risk that cannot be controlled. Gmelch, an anthropologist and professional baseball player, pointed out that in baseball, some players do magical acts (rituals) while others do not (these acts are sometimes called "superstitions") He points out that several positions on the baseball team are "high risk" whereas others are "low risk". Pitchers are high risk. There are many factors that impact on whether the pitcher does well or not. Outfielders just have to catch the ball and throw it. He then points out that the pitchers are the ones who want to wear the same socks they wore when they pitched a winning game, or come to the locker room at the same time as the last game the one. Outfielders seem oblivious to such things. Magic is something which occurs then when risk is high, and when there seems nothing else left to do.

Since being on the ocean is a high risk situation, one might suspect that as societies become more technological, the perceived risk begins to drop and the amount of magic practices begin to drop off as well. Japanese commercial fishermen told me "It was bad luck not to show up on pay day!" They did know of some other statements that had been made about things one should not do on board a ship. For example, one should not pour soup over rice.

This is a kind of "sympathetic" magic where like produces like. Liquid (soup) going over something more solid (rice) can be seen as paralleling the ocean swamping the boat. Among American sailors on square rigged ships, whistling on board is considered bad. Whistling is made by a strong breath coming through the mouth. This parallels strong winds (storm winds) which are very dangerous to any ship.

Commercial divers using diving helmets known as Mark 5 used to tie a "carrick bend" – a bend is a way to fasten two lines together – through the loops in the diving helmets when they were hung up. (In this case, the "two lines" are actually the two ends of the one line). Other divers would refuse to use a helmet that didn't have this tie in the line. Deep sea or commercial diving is a risky business since divers are dependent on people on board the ship (tenders) to tend to their air hoses and other lines. In addition, being

on the bottom of the ocean wearing gear guaranteed to hold you under is not exactly something helpful if no one is there to pull you up!





Many of the ships in different parts of the world are decorated or given names to assure safety. Most Japanese boats are called something or other MARU – the word for “circle”. Nippon Maru (Japan Circle). The idea of the circle here represent a complete voyage. The ship goes out and then returns and makes a complete circle so in fact it has come home safely again.



Many boats are decorated with images designed to protect the vessel from harm in the ocean. Some of these include “figureheads” and others paintings

or carvings. Other times, the figureheads are related to the name or the company owning the vessel.

On the NW Coast of North America, native peoples built huge canoes that were decorated often with clan animals.



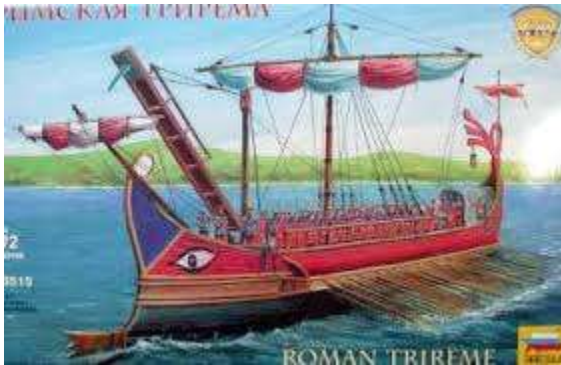


https://www.youtube.com/watch?v=Cac76wIVz_M



Ancient Egyptians used birds (possibly since they roost on land)

Phoenicians used horses as figureheads most likely to indicate (or hope for) speed some had "eyes" to watch for problems and directions



Greeks: Boars heads – ferocity, good vision

Romans: Centurions in battle

N. Europe: dragons, serpents, bulls, dolphins, and later swans for grace and mobility



Germany, Belgium small creatures lived in the figurehead which guarded against evil things like storms. If the ship sank, the spirits led the drowned sailor's souls to the land of the dead. Without such guides they would remain forever at sea.