

TRANSPORTATION ON THE DICLE AND FIRAT RIVERS IN ANCIENT AGES

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Abstract

While the Tigris and Euphrates rivers turned Mesopotamia into an agricultural paradise with the survival of people, it seems that living on these rivers with boats and rafts was no longer possible with the Chalcolithic Age. On these two rivers, which originate in Anatolia and flow into the Persian Gulf after merging, previously only the needed goods between Anatolia and Mesopotamia were transported from north to south. However, in later periods, trade began to be carried out through water connections to cities far from the Tigris and Euphrates rivers in Mesopotamia. These transportation activities, carried out with boats and rafts such as Mashoof, Isbiyah, Guffa, Kalaku, Coracle, Balams and Safinahs, turned into a major economic sector in Mesopotamia. The city of Hit, which constantly produced these vehicles for more cargo transportation and safer journeys, became an important industrial center of its time. Since the transportation services on the rivers, which became the locomotive of the Mesopotamian economy, turned into an activity that concerns almost everything, it can be seen that the periodical city authorities introduced some laws and rules for the more orderly and safe operation of these means of transportation.

Keywords: River Transport, Mesopotamia, Tigris and Euphrates Rivers, Trade, Kelek.

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ESKİ ÇAĞDA DİCLE VE FIRAT IRMAKLARI ÜZERİNDE TAŞIMACILIK

Öz

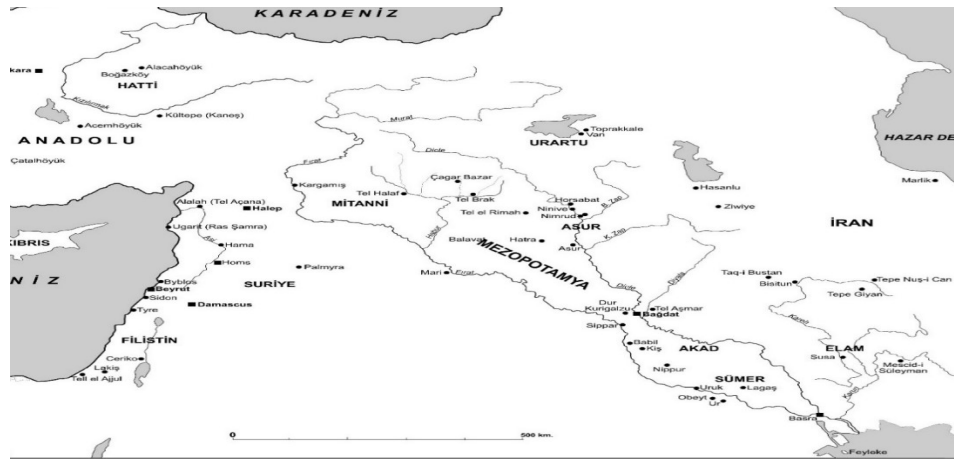
İnsanların yerleşik hayata geçmesiyle Dicle ve Fırat ırmakları Mezopotamya'yı tarım cenneti haline getirirken, Kalkolitik Çağ ile birlikte bu ırmaklar üzerinde kayık ve sallarla taşımacılığın yapılmaya başlandığı görülür. Anadolu'da doğan ve birleştikten sonra Basra körfezine akan bu iki ırmak üzerinde önceleri Anadolu ve Mezopotamya arasında sadece kuzeyden güneye ihtiyaç duyulan mallar taşınmıştır. Ancak, sonraki dönemlerde Mezopotamya'da Dicle ve Fırat ırmaklarından uzak olan kentlere açılmış olan su kanalları üzerinden de ticaret yapılmaya başlanmıştır. Mashoof, İsbayah, Guffa, Kalek, Coracle, Balams ve Safinahs gibi kayık ve sallarla yapılan bu taşıma faaliyetleri Mezopotamya'da büyük bir ekonomik sektöre dönüşmüştü. Daha fazla yük taşıma ve güvenli yolculuk için sürekli geliştirilen bu araçları üreten Hit kenti dönemin önemli bir sanayi merkezi haline gelmişti. Mezopotamya ekonomisinin lokomotifine haline gelen ırmaklar üzerindeki taşımacılık hizmetleri hemen herkesi ilgilendiren bir faaliyete dönüştüğü için dönemin kent yöneticileri tarafından bu taşıma araçlarının daha düzenli ve güvenli işleyişleri için bazı kanun ve kurallar getirdikleri görülmektedir.

Anahtar Kelimeler: Nehir Taşımacılığı, Mezopotamya, Dicle ve Fırat Irmakları, Ticaret, Kelek.

1. INTRODUCTION

Transportation activities on the sea and rivers are as old as human history. In the formation of this transportation, the floating of tree stumps of various sizes, which ancient people saw on the sea or rivers, has been inspiring. Although it is known that primitive means of transport were used on the sea or rivers in the Neolithic Age, rafts or boats for transporting people and goods appeared for the first time in Mesopotamia. The reason behind the formation of raft or boat models that emerged in Mesopotamia is undoubtedly the Tigris and Euphrates rivers that form and give life to this region.

The name Mesopotamia (Sevin, 1999. p. 190), which is a combination of the Greek words "Mesos" meaning in the middle or between and "Potamos" meaning river for the region between the Tigris and Euphrates rivers, was first used by ancient writers Polybius (203-120 BC) and Strabon (64 BC – 24 AD) used it (Harmanşah 2005, p. 68). While the Tigris and Euphrates rivers (Figure 1), which determine the borders of the Mesopotamian geography, are located within the borders of Iraq today, some parts in the west and north are within the borders of Syria and Turkey (Bertman, 2003, p. 2). In Egyptian sources, the name "Naharin" was used for Mesopotamia, which is located between the Tigris and Euphrates rivers (Finkelstein, 1962, p. 22), and in late Arabic sources, the name "Cezire", meaning the island between two rivers, was used (Memiş, 2012, p. 5).

Figure 1. Map of Mesopotamia Showing the Tigris and Euphrates Rivers

Resource: <https://www.tarihsinifi.com/6584/mezopotamya-kultur-ve-uygarligi.html>

The Tigris and Euphrates rivers, which are fed by underground water resources as well as the water flowing from the high mountains and valleys of Eastern Anatolia, descend from Anatolia to Mesopotamia, merge in the south and then flow into the sea in the Persian Gulf (Atalay, 1978, p. 59; İplikçioğlu, 1990, p. 45). In the written records of the ancient period, the Tigris and Euphrates rivers appear with different names in different cultures. While it made Mesopotamia a paradise of life and civilization with many cities built on the Tigris and Euphrates rivers and their tributaries (İplikçioğlu, 1997, p. 24; Memiş, 1990, p. 10), thanks to these rivers, various fruit and plant species, especially Fish, bird species and game animals have also joined the economy of the region.

Its total length is 1900 km. 523 km of the Tigris River, which is around 523 km, is located within the borders of Türkiye. The Tigris River was formed by the merger of the foot of Hazar Lake (Gölcük) in the southeast of Elazığ and the waters coming from Hazar Baba Mountain in the south of this lake, and today the connection with Hazar Lake has been cut off (Narçın, 2013, p. 148; Tunçel, 1991, p. 281). Another important source feeding the Tigris River is the Birklinçay (Bırkleyn) cave near Lice, where famous Assyrian reliefs and inscriptions are located (Koroğlu, 1998, p. 1). Tigris River, Idigna/Idigina by the Sumerians, Aranzah by the Hurians (Kiyemet, 2019, p. 30; Reiken, 2001, p. 578) and Sadi-Şadi (Beysanoğlu, 1996, p. 15; Akın & Başaran, 2021, p. 188), it appears as Idiglat by the Akkadians (Bahar, 2010, p. 38) and as Idiglat-Diglat in Assyria (Florioti, 2012, p. 147-159). While the Tigris River is referred to as Idiklad in the Babylonian language (Beysanoğlu, 1996, p. 15), it is seen as Ti-gi-ra in the Elamite language and is referred to as Tigris in Greek (Ünsal, 2012, p. 218).

Its total length is 2800 km. The length of the Euphrates River in our country is 971 km. is around. The Euphrates River, which is fed by the Karasu River in the north and the Murat River in the east, takes the name Fırat after leaving the Keban Dam Lake (Ünsal, 2012, p. 219). While the Euphrates River was known as Puruna among the Hittites (Kuhrt, 2007, p. 316), it is also seen as Mala in some Hittite tablets (Beckman, 1997, p. 158; Kuhrt, 2013, p. 219). While it is generally referred to as Buranun-Buranunu in Sumerians, it is recorded as Purattu in some sources (Borger, 1978, p. 199). The Euphrates River, which is called Purattu in Akkadian and Assyrian languages (Ünsal, 2012, p. 219; Tunçel, 1991, p. 31). It is referred to as Purattu in Babylon (Kuzuoğlu, 2007, p. 186) and Euphrates in Greek (Strabon, 2015, XII,2,1). The Euphrates River, which means fresh water in Arabic (Yıldız, 2011, p. 56), has been a source of life not only for Anatolia but for all the geographies it passes through.

2. TRANSPORTATION ACTIVITIES

The history of transportation on the Tigris and Euphrates rivers, called twin rivers in Mesopotamia, dates back to the Chalcolithic Age. Archaeological findings from the Ubaid Period show that transportation was carried out by boats on rivers and many ports were built. Boat models made of baked clay and bituminized (pitch) dating back to the Ubaid Period in the 5th millennium BC. Boat models seen on cylinder seals dating back to the middle of the 4th millennium BC constitute the earliest examples of river vehicles (Sağlamtimur, 2015, p. 15). The fact that many different boat models made of clay were found in the Ubaid Period building layers in settlements such as Uruk, Eridu, Tell Uqair, As Sabiah and Tell Abada shows how extensive the boat construction technique was in this period, as well as how intensively the boats used in transportation were used (Sağlamtimur, 2015, p. 9). Childe, who conducted research on the subject of river transportation, which has become a remarkable issue, revealed that the earliest cuneiform documents regarding the boat technique belong to the Sumerian period (Childe, 2006, p. 13). In written documents from the reign of Lagash king Gudea, it is mentioned that cedar logs from the Amanos Mountains were transported to Mesopotamia over the Euphrates River for the construction of the Ningirsu temple (Memiş, 2013, p. 27). In cuneiform tablets from the Old Babylonian period, it is stated that grain, fruit-vegetables, fish, milk, oil, humans, animals, precious stones and bricks for construction were transported on the canals connected to the rivers (Bass, 1995, p. 1421). An intense trade network established between the Assyrian cities on the Tigris River and Central Anatolia in the 2nd millennium BC (Köroğlu, 2013, pp. 94-99) was of great importance for Assyrian colonial activities. The commercial goods, which were brought down to the Persian Gulf by

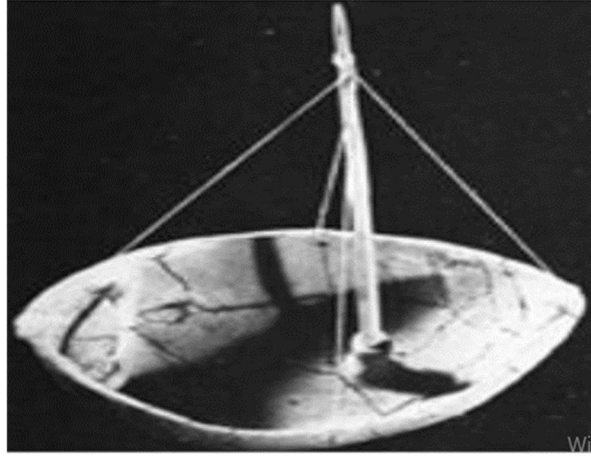
boats through the many port cities established on the banks of the Tigris and Euphrates rivers, were then transported to distant regions such as Dilmun (Bahrain), Magan (Oman) and Meluha further south. While many port cities are known on the Tigris and Euphrates rivers in Mesopotamia, archaeological excavations in recent years have identified new port cities in Anatolia on the Tigris and Euphrates rivers that enable the shipment of trade goods to the south. One of these cities is Çattepe, which was founded where the Botan Stream meets the Tigris River. Archaeological excavations conducted here revealed data that Çattepe was an important port during the Roman Period and that trade goods were shipped from here to the cities of Mesopotamia in the south (Sağlamtimur-Türker, 2012, p. 73; Sağlamtimur, 2015, pp. 29-35). Archaeological data show that river transportation, which became a very important economic activity in Anatolia and Mesopotamia, was secured by the sovereign states of the period. We witness that some legal rules were introduced by the rulers of the period in order to ensure the smooth operation of river transportation and transportation vehicles, which gained more importance especially in Mesopotamia. The best examples of these legal regulations are seen in the laws of Hammurabi written in Akkadian in Mesopotamia. We can understand that these laws provide legal guarantees on issues such as the operation of boats-ships, their construction, tarring, transportation fees or compensation for damages (Kitchen & Lawrence, 2012, p. 167; Tosun & Yalvaç, 1975, 208).

3. VEHICLES AND CONSTRUCTION TECHNIQUES USED IN TRANSPORTATION

It is seen that the vehicles used in river transportation on the Tigris and Euphrates rivers, which are the subject of this study, are made with different techniques and called by various names according to different purposes and load carrying capacities.

Due to the presence of mast slots and mooring holes in a clay boat model unearthed in a grave during the Ubaid rule in the city of Eridu in the Late Chalcolithic Age (5000-3000 BC), this example was taken to the provinces as evidence that sailing boats were used (Figure 2), (Roaf, 1996, p. 122).

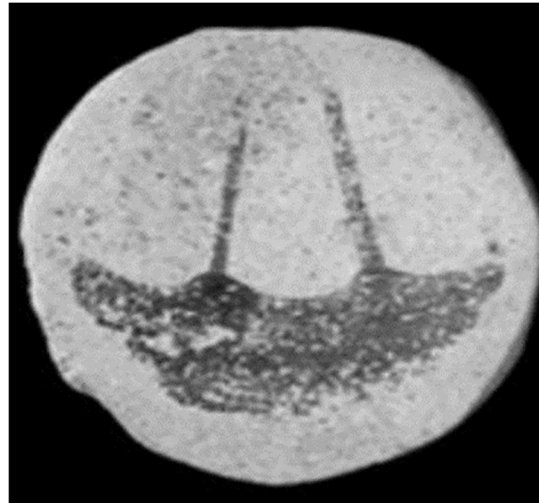
Figure 2. Model of a Sailing Boat Made of Clay from the Reign of Ubaid (5000-3000 BC) in the City of Eridu



Resource: <https://jaysearchaeology.wordpress.com/2019/11/08/>

Likewise, finds of a sailing ship (Figure 3) on a disc made of clay were unearthed in As Sabiyah, located on the coast of the Persian Gulf in the Late Chalcolithic Age (Ekmen, 2015, p. 48).

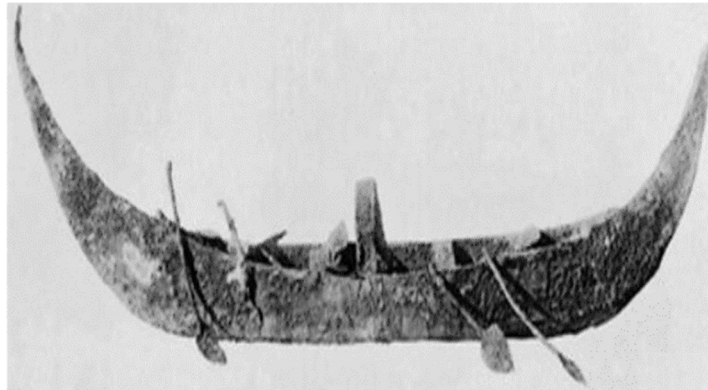
Figure 3. Sailboat Model from the City of as Sabiyah



Resource: <https://www.researchgate.net/figure/The-clay-model-of-a-boat-found-in-one-of-the-chamber>

After the Ubaid rule, in addition to the discovery of different boat models in the tomb of King Abar-gi of Ur (Wooley, 1934, p. 150), rowing boat models known as Mashhoof (Figure 4) were also unearthed. This shows us that instead of sailing boats, which were used for transportation on the Tigris and Euphrates Rivers and constituted the early examples, rowing boats, which they considered safer, may have been preferred due to the possibility of capsizing due to wind (Adamson, 1992, p. 176).

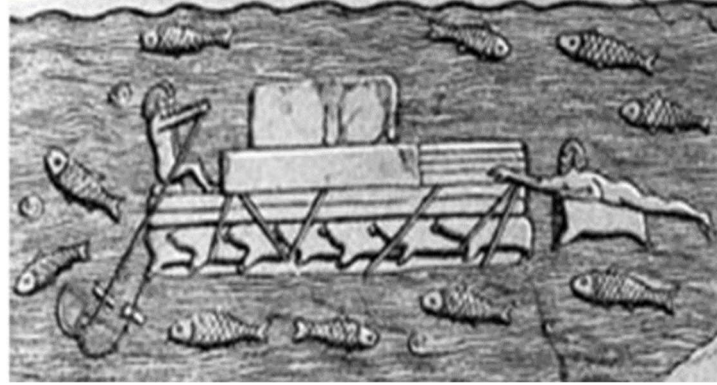
Figure 4. The Boat Known as the Mashhoof, Found in the Tomb of Abar-gi, King of Ur (Mid-Third Millennium BC)



Resource: <https://en.m.wikipedia.org/wiki/File:Silver>

It is known that people, livestock and cargo were transported on the Tigris and Euphrates Rivers thousands of years ago, as we know them in Anatolia, "Kelek". It is known that the keel, which seems to have been used mostly in the Tigris River (Doru, 2013, p. 256), was made by inflating animal hide (Bass, 1995, p. 1421) and was actually used by people as a life preserver to cross rivers before being used as a raft. The idea of making kelek must have been born by observing people crossing the street with these hides, probably by bringing together a large number of hides and mounting them under a platform in order to carry more loads and people (Casson, 2022, p.1). Important information has survived from ancient sources that the Assyrians extensively used rafts made of animal hides, which they called "Kalaku", for river transportation (Güney, 1990, pp. 323-325). It is thought that the raft that Assyrian merchants used to cross rivers during their trade with Anatolia in the early periods, and which they simply named "İlippum" without giving any details, may actually be a type of kelek (Florioti, 2012, p. 148). However, in later periods, Assyrian Emperor Tiglat-Pileser I (1114-1074 BC) and II. In the annals dating back to the reign of the Assyrian Nasir-Pal (884-859 BC), we have obtained inscriptions clearly explaining how the Euphrates River was crossed using keleks made of goat skin (Grayson, 1976, p. 14). The fact that a relief from the Sennacherib period (704-681 BC) depicts the inhabitants of the Lower Euphrates using hide keleks (Figure 5) that were large and durable enough to carry construction stones (Casson, 2002, p. 4) documents how specialized the Assyrians were in making keleks. Indeed, when the raft construction technique depicted in the river transportation scenes seen in these Late Assyrian reliefs is carefully examined, it is understood that it is exactly similar to the keleks used today (Bahar, 1997, p. 41).

Figure 5. The Scene of Carrying Kelek and Stone Blocks for Architectural Structures in a Relief from the Sennacherib Period (704-681 BC)



Resource: Cason, 2002, fig.3

Kelek was prepared by increasing or decreasing the number of overalls for load transportation, type and weight of the load, passenger transportation and special situations, depending on the purpose of use (Doru, 2013, p. 162; Sağlamtimur, 2015, p. 13). According to an average calculation, a kelek made of 150 overalls could carry 2.5-3 tons of load (Doru, 2013, p. 164; Güney, 1990, p. 324). Depending on the purpose of use, keleks with overalls ranging from 300 to 800 and carrying 32 tons were also made, especially for carrying loads. However, large-sized keleks were not preferred because they were difficult to use on water (Doru, 2013, p. 162; Sağlamtimur, 2015, p. 13). Ancient sources and archaeological data show that people have been trading with kelek from Anatolia and surrounding points since the early periods and between important cities such as Mari, Uruk, Ur, Nineveh, Assyria, Babylon, Nippur, Baghdad, Mosul, Samarra and Lagash (Doru, 2013, p. 162). Among the goods transported according to needs, logs cut from the forests of the Southeastern Taurus Mountains, wood to be used as fuel, construction materials, rock salt, mineral ore, grain materials such as wheat and barley of the Diyarbakır basin, which are food for both humans and animals used for their power, have been carried regularly over the Tigris with these keleks for centuries. It greatly reduced labor and costs while moving south (Güney, 1990, p. 325).

Ancient sources provide important information about the vehicles used in river transportation and their construction techniques. The overalls depicted by Herodotus while describing the passage from Assyria to Babylon over the Euphrates River are most likely keleks or similar boats. Herodotus says that the boats that went down the river to go to Babylon were round and made of leather. He mentions that after their wooden ribs were made from willow trees in Armenia, they were covered with animal hide and that they loaded the items into them and

left them adrift. He mentions that these boats were propelled by oars and that there was a donkey inside. When they reached Babylon at the end of the expedition, the goods were sold, the boats were dismantled, and after the wood was sold, the animal hides were collected, loaded on a donkey, and brought back (Herodotus, 2014, p. I, 194). One of the important boat models used in river transportation in Mesopotamia is the Isbiyah (Figure 6). This river boat, also called Kaya, is close to the type of boat depicted on Sumerian seals and continues to be used on the Euphrates River today. It is made of willow or reeds growing on the banks of streams, woven into wickerwork, and then bituminized (pitched) to ensure waterproofness. Since its front part is high and its rear part is rectangular, Isbiyah, which is similar to the boats used in the Sumerian period, fits the description of the boat used on the Euphrates by Herodotus (Herodotus, 2014, p. 1, 194). This type of boat was generally built in the city of Hit, famous for its bitumen deposits, which brought the city of Hit to the forefront in the boat-ship construction sector. Because of this importance (due to its bitumen resources), the city of Hit was insistently requested from the king of Mari by the Babylonian king Hammurabi (Bordreuil et al., 2014, p. 76).

Figure 6. The Boat Model Called Isbiyah.



Resource: https://ankara.edu.tr/pluginfile.php/203580/mod_resource/content/1

Guffa is one of the vehicles used in river transportation in Mesopotamia. It is a type of round basket boat called Guffa in Arabic and “Guppu” in Akkadian (Bas, 1995, p. 1422). According to some researchers, Guffa is considered the oldest boat in the world. These basket-shaped boats were built in Iraq along the banks of the Tigris and Euphrates and continue to be used today (Figure 7). Since it had a spherical shape, boaters would stroke their oars left and right to prevent the boat from turning around itself while moving in streams, ensuring that the boat went on a balanced route. These heavy boats, which were large in size and could carry more than 50 tons of grain, fruit and other products (Bass, 1995, p. 1422), were burned there after

reaching the desired point, as there was no return (Fowler, 2008, p. 9). Instead of overalls, the guffa was constructed from local pomegranate wood, a mixture of date palm and straw, and then bituminized to make it waterproof (Fowler, 2008, p. 9).

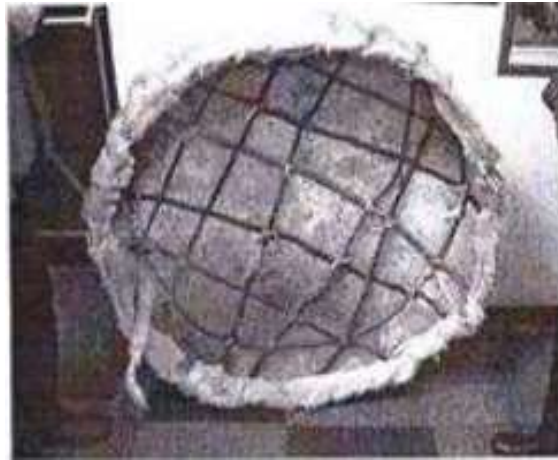
Figure 7. The Boat Model Called Guffa, which is Still Used Today



Resource: <https://www.academia.edu/31755573/>

A type of basket boat that is similar to the guffa is the Coracle (Figure 8). It was one of the earliest boat forms used in water transportation in ancient times (Fowler, 2008, p. 9). The round-shaped coracle, built of skins stretched over frames made of willow branches, was sold or burned at the end of the journey, as was the case with other types of boats (Mountjoy, 2005, p. 7). Another boat model used in Mesopotamia, especially in swamps, is the boat called Mashoof. The Mashoof boat type was first discovered in BC It was found in the tomb of A-bar-gi, King of Ur, in the middle of the 3rd millennium BC This boat model, known as "Mashhoof", continues to be used today by those living in the swampy region of Southern Iraq, and its similarities to the models found in the Royal Cemetery of Ur can be seen. Another type of boat used on the Tigris and Euphrates are shallow, flat-bottomed boats called Balams. It is known that the Muhaylahs and Safinahs types, which are sailing boats reaching up to 30 to 80 feet in length, are among the other traditional watercraft used on the river, and were built in the Hit city (Mountjoy, 2005, p. 8).

Figure 8. The Picture Showing the Basket Boat Model Called Corakle, which is Still Used Today



Resource: Fowlwer, 2008, fig. 10

It is seen that river transportation vehicles, which have become a major industry in Mesopotamia, were built in different models and techniques in many cities, especially the city of Hit. Indeed, we can understand from ancient sources that shipbuilding and transportation turned into a large industry and gained an institutional structure in the Sumerian city of Lagash 4500 years ago (Kramer, 2014, p. 60). Close analogues of these raft, rowboat, boat or ship types continue to be used on the Tigris and Euphrates rivers today as an economic value.

4. CONCLUSION

Transport activities on seas and rivers are as old as human history. However, the first place where boats used for transportation first appeared was Mesopotamia. Combining the Greek words Mesos, meaning between, and Potamos, meaning river, it was first used by Polybius and Strabo to describe the geography between two rivers. The Tigris and Euphrates rivers, which form Mesopotamia, are fed by the high mountains and valleys of Anatolia and groundwater and flow into the sea from the Persian Gulf in the south. The Tigris and Euphrates rivers, which gave life to Mesopotamia, were called by different names in various cultures. It is seen that people living in Mesopotamia have been regularly transporting people, livestock and trade goods from north to south in order to meet their needs and trade through these rivers, called twin rivers, since the Chalcolithic Age. From the archaeological findings from the Ubaid Period, it is seen that transportation was made by boat on the rivers and many ports were built. Models of boats made of baked clay and bituminized (pitched) dated to the Ubaid Period in the 5th millennium BC. Boat models seen on cylinder seals dating back to the mid-4th millennium BC are examples of the earliest river vessels. The boats built for

transportation purposes were called by various names depending on their techniques, shapes and sizes. A clay boat model found in a grave during the Ubaid rule in the Late Chalcolithic Eridu city (5000-3000 BC) was seen as the earliest model of sailing boats, as it had mast slots and mooring holes. The most striking among these river tools is the kelek, which is still used today. Kelek, which consists of wooden ribs placed on inflated animal hides, is called Kalaku in Assyrian, Kalakku in Akkadian and Kalak in Aramaic. Apart from kelek, boat types such as Guffa, İsbıyah, Mashoof, Balams, Muhaylahs and Safınahs were also used on the Tigris and Euphrates rivers.

Despite our age dominated by high technology, it is noteworthy that ship-boat models similar to those used thousands of years ago on the Tigris and Euphrates rivers are still used as an economic tool today.

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