

NEW THOUGHTS
ON THE TRADE OF LAPIS LAZULI
IN THE ANCIENT NEAR EAST
c. 3000 – 2000 B.C.

by

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The trade of lapis lazuli in the ancient Near East has been one of continuous interest over the past forty years. It has been theorized that the semi-precious stone, which occurs naturally in modern-day Afghanistan, reached its destinations throughout the Near East by various trade networks. However, many of these theorized routes do not include recent excavations. Therefore, the goal of this study was to attempt to find new or substantiate existing claims of lapis lazuli trade routes through the analysis of textual evidence and recent excavations, namely the sites of Tell Brak, Tal-i Malyan, Tarut Island, and el-Tôd. Whereas each site was a participant in the trade of lapis lazuli due to the mere presence of the stone, each city played a different role in its trade. However, the most compelling conclusion of this study is the possibility of a trade route by sea originating in the Indus Valley.

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INTRODUCTION

The role of lapis lazuli in the study of the ancient Near East during the third millennium B.C. is relatively new, yet the semi-precious stone, which ranged in use from a tiny bead to the full beard of an ox on a lyre, has created much interest not only regarding its use, but even more importantly, how it got there. Due to the rarity of the stone and the relative absence of known mines throughout archaeological contexts in Mesopotamia¹ and Egypt (as lapis² is incapable of forming geologically in these areas), it has been widely accepted that lapis lazuli must have been imported from an outside source, traveling along various routes to be traded for other precious materials. The route along which lapis traveled has been studied throughout the years, with a general acceptance of a northerly route as promulgated by Georgina Herrmann in 1968. Herrmann argues that this route, which began with a well-known lapis lazuli mine in the Badakhshan Province in Afghanistan, went in a western direction, traveled through northern Iran and Iraq, and eventually led to the Mesopotamian city of Tepe Gawra, which held a monopoly over the semi-precious stone during the fifth to fourth millennium B.C. Other routes, such as a possible southerly trade route, have also been considered, but have not been as thoroughly studied as the northern.

In fact, most of the research on the trade of lapis lazuli was done in the 1960s through to the 1980s. Therefore data from excavations of the past 30 years has not been included in their discussion. Without the incorporation of data from recent excavations, it cannot be said if the

¹ The ancient land of Mesopotamia, literally “[land] between the rivers” (i.e. the Tigris and Euphrates Rivers), largely covered what is today Iraq, but also included parts of modern-day Syria and southwestern Iran.

² Note to the reader: Throughout this study the terms “lapis” and “lapis lazuli” are used interchangeably.

northern route was the only one in existence let alone the only in use at the time. Additionally, recent excavations were decided upon because of the possible confusion in the early excavations of the ancient Near East and Egypt between artifacts of lapis lazuli and faience, a man-made glaze created in the second millennium B.C. made to look like the semi-precious stone (Von Rosen 1988:20). Therefore, by choosing recent excavations from the 1980s, accurate identification of the stone was deemed more likely.

Although originally it was intended that recent excavations from the 1980s onwards be used, I found that most of my sites, although published recently, were excavated for the most part in the 1970s. As a result, I was forced to push my study to the analysis of excavations over the past forty years instead. It is my proposition, therefore, that through the integration of the newfound data from the past four decades of excavations in Iraq and Egypt, the possibility of alternate trade routes and periods of trade, in addition to the true comprehension of the role of both Iraq and Egypt in the long distance trade of lapis lazuli, can be more thoroughly understood.

First, however, an understanding of the different types of trade would be beneficial. One model regarding the trade of raw material in the ancient world is known as “Regional Organized Trade,” a type of medium distance trade in which smaller cities were ignored on the routes between regional centers who were mainly involved in the redistribution of goods. These centers were all interdependent on each other, for one center would trade one exotic material for another, and then conduct trade with another center using their newly acquired material from the first transaction. In the next type of trade model, known as “Long Distance Organized Trade,” trade was conducted not between regional centers, but between kingdoms, many larger cities often being by-passed along the direct routes between the two regions. The materials being traded in

this instance changed hands with less frequency than in Regional Organized Trade, and is most likely an inappropriate model to use for this study (Beale 1971:142-143).

The third trade model, named “Local Redistributive Trade,” is one in which trade routes move toward the center or source of the material being traded, and then move out of it again. This gives a more constant supply of the material, particularly if it is rare and exotic. Local Redistributive Trade often works in conjunction with what is known as “Trickle Trade” which theorizes that as a material, particularly a rare and exotic material, gets further away from its source through short distance trade, it will continuously decrease in size as it is exchanged, worked, and eventually discarded. This type of trade does not go in any particular direction, but through the continuous small transactions, the material decreases in size and quantity exponentially as the distance between the material and the source increases (Beale 1971:141-142). Therefore, the nearer a site is to a material’s source, the larger and more abundant the material will be. By using this model, the weight of lapis lazuli at various sites throughout the ancient Near East will be measured against the weight of local raw material, thereby giving an indication of the routes the material might have taken.

BACKGROUND

Chronology

Before continuing, it is first necessary to understand the time and space on which this study focuses. Although the areas of Mesopotamia and Egypt for the most part developed alongside each other, they have their own separate chronologies, including the names given to the varying

periods of each region. Therefore, in order for the reader to be able to easily reference the years in which a certain period occurred, it is necessary to provide a chronology of each region, including the separate periods of Northern and Southern Mesopotamia. Since this study is looking at the trade of lapis lazuli during its high point (c. 3000 B.C. to c. 2000 B.C.), only the periods encompassing those dates, and the periods immediately surrounding them, are included. For a full chronology of the ancient Near East see the Appendix below. It should also be noted, however, that there still continues to be much debate in the academic world about both sets of chronologies due to radiocarbon dating and textual evidence, and that there are many different sets of dates depending on the author. The following chronology is a compilation of dates given by P.R.S. Moorey in his work *Ancient Mesopotamian Materials and Industries: The Archaeological Evidence* (1999) and Nicholas Reeves in *Ancient Egypt: The Great Discoveries: A Year-by-Year Chronicle* (2000):

Table 1. Chronologies of Northern Mesopotamia, Southern Mesopotamia, and Egypt.

TIME PERIOD (B.C.)	NORTHERN MESOPOTAMIA	SOUTHERN MESOPOTAMIA	EGYPT
4500-4000	Ubaid	Late Ubaid	Neolithic
4000-3500		Early Uruk	
3500-3100	Jemdet-Nasr	Late Uruk	Predynastic Period
3100-3000			
3000-2700	Early Dynastic	Sumerian	Early Dynastic
2700-2650		Akkadian	Old Kingdom
2650-2250			
2250-2100			
2100-1950		Ur III	Middle Kingdom
1950-1800	Old Babylonian		
1800-1600	Hittite	Kassite	New Kingdom
1600-1550			
1550-1100			

Geography

The geography of the ancient Near East is also of particular importance, for it has a great bearing on the routes traders would have used. Today, the ancient Near East is generally considered to be those countries of the current Middle East. However, because the general size of the ancient Near East varied with the expansion and collapse of empires, pinpointing exactly which countries today were a part of the ancient empires is difficult, and varies from author to author. In this case, I used the areas mentioned by Amélie Kuhrt in her two volume work *The Ancient Near East c. 3000 – 330 BC* (1995), namely being Turkey, Egypt, Israel, Lebanon, Jordan, Syria, Iraq, and Iran. However, for this study, the countries of Saudi Arabia, Bahrain, Pakistan (anciently the Indus Valley) and Afghanistan are also included (See Figure 1).



Figure 1. Map of the Middle East (Google Earth 2010).

One important aspect of the geography of the ancient Near East is the Zagros Mountains, which lie between the Iranian Plateau and Iraq, acting as a type of border between the two countries. Similarly, the inhospitable Arabian Desert, which takes up most of Saudi Arabia and some of her bordering countries, separates Iraq from the Levant (mainly the modern countries of Jordan, Lebanon, Israel, and part of Syria). Regarding waterways, the important bodies of water in the ancient Near East include the Tigris and Euphrates Rivers, the Nile, the Indus River, the Red Sea and the Persian Gulf. Other rivers worthy of note for this study are the Panjshir and Kabul Rivers in northeastern Afghanistan (See Figure 3).

What is Lapis Lazuli?

With a Mohs hardness of 5 to 5.5, lapis lazuli is a rare semi-precious gemstone mainly found in a blue color due to the presence of its main component, an alumino-silicate mineral called lazurite ($[\text{Na, Ca}]_4[\text{AlSiO}_4]_3[\text{SO}_4, \text{S}, \text{Cl}]$).³ Lapis is also made of the mineral calcite which, when in abundance, produces specks, patches, or veins of white (Aston et al. 2000:39). Similarly, the mineral pyrite, another main component of lapis lazuli, produces “blemishes,” but which are of a brassy, golden color. However, neither of these were desirable, for the finest quality of lapis was considered to be free of any blemishes and have a pure royal blue color (although the color of the stone can vary considerably, even making it to a bright green) (Herrmann 1968:24). Most lapis lazuli in the archaeological record is the pure royal blue color that was so sought after and used mainly in jewelry, while the poorer quality lapis was used for items such as stamp or cylinder seals. Chemically, lapis lazuli is formed in a process called “contact metasomatism,” in which a metamorphosis occurs “that involves changes in the chemical composition as well as in the

³ The amount of this lazurite also dictates the deepness of the blue of lapis lazuli, with larger amounts causing a dark, almost violet, blue (Herrmann 1968: 24).

texture of rock” (Merriam-Webster 1981:716); in this particular case, between limestone and granite: two elements necessary for the formation of lapis lazuli (Herrmann 1968:24).

With main sources of the stone occurring in Afghanistan, lapis lazuli was a rarity for the rest of the ancient Near East and was therefore quite valuable because of its scarcity. Since Iraq is devoid of many mineralogical resources, trade was established with Afghanistan as early as 3500 B.C. (Herrmann 1968:21). Lapis lazuli in particular was desirable for a variety of reasons, mainly being used as beads and inlay, both for jewelry and figurines. Other uses for lapis include amulets, cylinder and stamp seals, and even vessels for a short period in Egypt (between the Naqada III and Early Dynastic Periods) (Aston et al. 2000:39). Overall, however, lapis occurs mainly in the form of beads throughout the archaeological record of the ancient Near East.

Sources of Lapis Lazuli

Regarding the sources of the semi-precious stone, the work of Georgina Herrmann, in her 1968 article “Lapis Lazuli: The Early Phases of Its Trade,” discusses numerous sources of lapis, such as the Badakhshan region in modern-day Afghanistan, the Pamir mountain range, Lake Baikal in Russia, Iran, and Egypt (See Figure 2).

The Badakhshan source is the most widely accepted out of all, and includes the following lapis lazuli mine locations: Sar-i-Sang, Chilmak, Shaga-Darra-i-Robat-i-Paskaran and Stromby (See Figure 3). The first of these mines, at Sar-i-Sang, have been the most extensively explored, particularly because it is the only one that is still mined today. When discussing her actual excursion to this mine, Herrmann notes the character of the lapis, describing it as being “in a thick, rather ill-defined band varying considerably” in color, ranging from a deep to royal to light blue, then to a turquoise color, “and finally a few pieces of brilliant green” (Herrmann 1968:24).

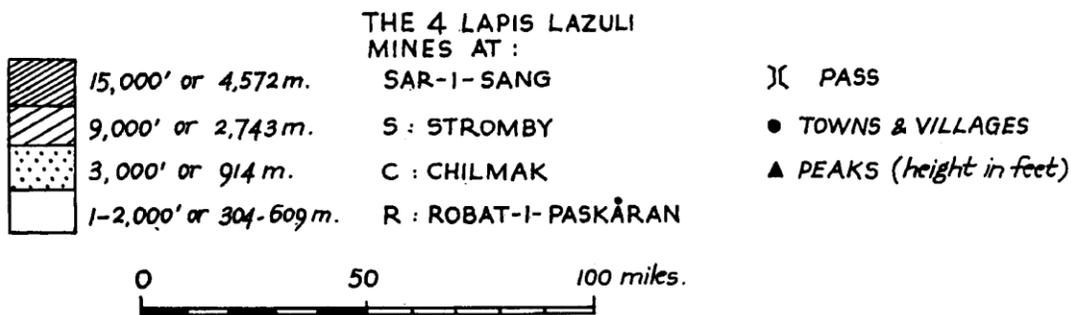
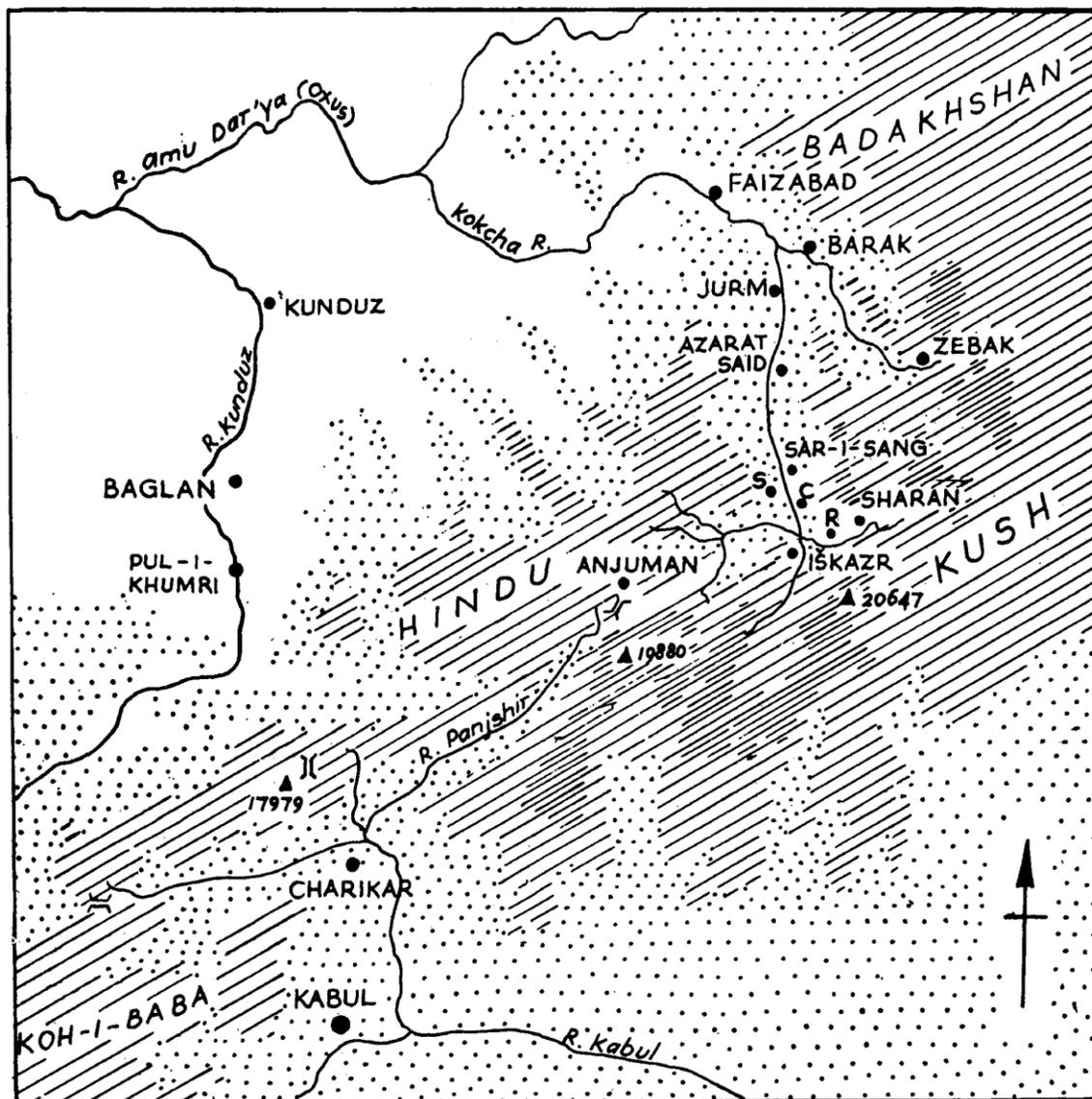


Figure 2. Confirmed and theorized sources of lapis lazuli (North American Cartographic Information Society 2010).

Herrmann also discusses a major factor in the use of the Sar-i-Sang mines, noting the difficulty of the terrain and location, for they are situated on a steep mountainside with zig-zagging roads that are destroyed with each winter. Due to the harsh conditions, mining there is only conducted for three months out of the year (Herrmann 1968:22-24).⁴ Still, the Badakhshan mines are considered to have been the primary source of lapis found throughout the ancient Near East.

Another source location discussed by Herrmann is high in the Pamir mountain range, located along the far western edge of the Chinese border and into the northern tip of Pakistan (See Figure 2). Although the legendary source located here was indeed authenticated in 1930 by a Russian expedition, the lapis lazuli was even more difficult to get to than the mines at Sar-i-Sang in Badakhshan. Although the locals hardly traversed the path to the lapis deposits because

⁴ For a discussion on historical mining techniques at the Sar-i-Sang mines, cf. Herrmann, 1968 p. 24-26.



taken from U.N. No. 279 . rev. 3.

Figure 3. Map of Northeastern Afghanistan, including lapis lazuli mines (Herrmann 1968:23).

of the inevitable mountain sickness that occurred, the Russian expedition nevertheless dared to reach the lapis source, located next to a glacier high in the mountains. The men of the expedition had to travel up the mountain a total of 16,500 feet, leaving their horses behind two-thirds of the way through due to the steep nature of the path. Therefore this source, although not much further away from Mesopotamia than Badakhshan, would not have been utilized as frequently as the mines in Afghanistan (Herrmann 1968:28).

The southern tip of Lake Baikal in Russia is another confirmed source of lapis lazuli (See Figure 2), however it is even further yet from Mesopotamia (approximately 3,000 miles away) and the lapis in the mines is of quite a poor quality, being heavily laden with calcite and iron pyrites. Still, Herrmann does not reject the possibility that the Lake Baikal source was used, for even though the lapis is of poorer quality, there is an Early Dynastic II cylinder seal made of lapis that closely resembles that of the Russian source. And although the lapis mines at Sar-i-Sang do contain the exact same quality of lapis as the Lake Baikal source, Herrmann still posits that the Baikal source “cannot be altogether ignored” (Herrmann 1968:28-29).

While there is plenty historical textual evidence for the existence of a lapis lazuli source in Iran, any physical evidence of lapis is nonexistent, a fact reinforced by national geologists over and again. And although there is no evidence whatsoever that lapis deposits were present or mined in ancient Iran, historical evidence for the existence of sources there is extant in the writings of the State Accountant of Sultan Abu Said (r. A.D. 1316 – 1335), named Hamd-Allah Mustawfi. Herrmann settles this dilemma between the word of a historical State Accountant, who would be quite knowledgeable of his country’s resources, and the professional opinion of a modern geologist by stating that it is possible that the lapis lazuli that was there was of an inferior type and could have been simply worked out around the fourteenth century A.D.

Additionally, another textual source linking Iran with lapis lazuli mines is the diary of the Chinese traveler Č'an T̄ e, who was sent as an envoy to Persia by the Mongol emperor Mangu in A.D. 1259. In his writings to his brother Hulagu, Č'an T̄ e relates that lapis was found "on the rocks of the mountains in the south-western countries of Persia" (Herrmann 1968:27). In this instance, however, it is more likely that Č'an T̄ e was simply confusing lapis lazuli with turquoise, for there is a mine of the latter in that same area.

Physical evidence for a source somewhere in Egypt is also lacking, again despite a historical textual reference. In this particular instance, an Arab geographer from the twelfth-century A.D. speaks of a source near Kharga Oasis, southwest of Tell el-Amarna, but again there is simply no physical evidence for the even the possibility of lapis lazuli due to the sheer lack of contact-metamorphosed limestone, a material central to the formation of lapis. It has been recently speculated that the area of the southwest corner of Egypt, around Uweinat Oasis, might be a location with lapis lazuli, but again this is mere speculation and the theory is still unconfirmed (Aston et al. 2000:39). Other literary references to lapis sources that remain unconfirmed are the locations of Aratta and Turkish, both of which are most likely mythical places (Moorey 1999:xxii).

Given the consideration of all the above possible source areas of lapis lazuli, it is no wonder why Herrmann chose Badakhshan as being the principal source of lapis throughout the ancient Near East. When considering the level of difficulty in obtaining lapis in the Pamir Mountains, the extreme distance of Lake Baikal, and the lack of evidence regarding the rest of the sources, Badakhshan remains the most likely source. Herrmann gives this theory even more weight by continuing that "[King] Darius the Great (522-486 B.C.) proudly claims that the lapis lazuli used in the construction of his palace at Susa came from Sogdia, an ancient province in

Central Asia which included Badakhshan” (Herrmann 1968:28). Additionally, Herrmann claims that the color range of lapis from the mines in Sar-i-Sang is quite similar to that of lapis lazuli in archaeological contexts. One example, given by Herrmann, is the lapis inlay of the great “Standard of Ur,” which she claims has strong physical ties to modern samples from the Badakhshan mines (Herrmann 1968:28). These theories would later be confirmed by the work of Michèle Casanova in chemically analyzing and comparing archaeological lapis with known lapis sources, including the mines at Sar-i-Sang.

While one can reasonably compare the quality of archaeological lapis to the lapis found in the various source areas, a chemical comparison is a bit more difficult because lapis lazuli is composed of many mineral associations rather than being simply one mineral. Casanova has been able to compare archaeological samples from Tepe Sialk (1 sample) and Shahr-i Sokhta (28 samples) to the various mines, using atomic absorption spectroscopy, according to their principal chemical elements. While he was able to link many samples from Shahr-i Sokhta to the mines in Badakhshan (in addition to the fact that they are located near each other), he does admit that since the chemical composition of lapis varies so greatly in one deposit (particularly the deposits at Sar-i-Sang), more mining samples need to be taken from each of the source locations in order to achieve a stronger correlation between archaeological lapis and the lapis found in the known source areas. There is a glimmer of hope for future chemical comparison, however, as Casanova concludes that “trace element concentrations of barium and strontium allow for a better discrimination between likely origins for the archaeological samples” (Casanova 1992: 49-53).

Trade Routes of Lapis Lazuli

The exact route in which lapis lazuli traveled from its source area in Badakhshan, Afghanistan, to its destinations throughout the ancient Near East will perhaps never be known. Still, a good number of archaeologists and historians have pursued the subject with great vigor. Georgina Herrmann has again taken a major role in this subject, being the first to examine the probability that lapis lazuli traveled from the mines in Badakhshan along either a northern or southern route. Herrmann mainly discuss the northern route to Tepe Gawra, a site she proposed was a massive trade-control center during the Late Ubaid period. She also argues that this was one of the first Mesopotamian cities who controlled the lapis lazuli trade, which made its way from the mines in Afghanistan, through the impressive working-center of Tepe Hissar in Iran, then to Tepe Sialk and Tepe Giyan before finally arriving at Tepe Gawra. This route would eventually become known as the Great Khorasan (Silk) Road (Herrmann 1968:36). The fact that Tepe Gawra was such a major player in the lapis trade is disputed by some (namely Yusef Majidzadeh, who argues that it was simply a religious township acquiring the lapis lazuli through personal use and temple offerings (Majidzadeh 1982)), but her main trade route argument is generally accepted as a strong possibility, particularly because of the similar cultural material between Tepe Gawra and certain unnamed Iranian sites (presumably those mentioned above).⁵

This northern monopoly did not last long, however, for the trade soon shifted during the Jemdet-Nasr period to the growing cities in the South. These cities now controlled the lapis lazuli trade, having so much of an excess that they were able to export the stone even further to cities in Egypt and Syria. However, no solid theory of a southern route has yet been purported, only the simple concept that the route took a southerly direction in order to get to its destination.

⁵ See M. Tosi, 1974. Tosi makes a good argument in this, particularly given the lack of lapis processing such as waste flakes and raw material at Tepe Gawra.

Additionally, the southern settlements had a strong effect on the Iranian sites, controlling some while others simply dwindled away (Herrmann 1968:36-37). However, Iranian sites continued to play a key role in the trade of lapis lazuli, being the only intermediary between Mesopotamia and the Badakhshan mines, at least regarding a land route. Iranian sites along the plateau were where most of the working of the lapis occurred, for there is no archaeological evidence supporting the existence of production sites near the Badakhshan region or in the heart of the south of Mesopotamia. From the initial mining, then, at source areas such as Sar-i-Sang, the lapis lazuli was barely worked in order to get some of the “useless weight of quartz slag to a minimum;” the lapis was then transported to intermediary working sites such as Tepe Hissar, finally arriving later in Mesopotamia (Von Rosen 1990:10). Again, the exact route which lapis might have traveled is almost impossible to tell, and we can really only speculate. Still, with the analysis of recent excavations comes the possibility of a different route, a route which could, potentially, forever change our perceptions of the trade of lapis lazuli.

After the South’s newfound control over lapis during the Jemdet-Nasr period, a curious drop in the trade occurred during the first part of the Early Dynastic for about 200 years, an anomaly reflected in the archaeological record. The trade was soon resumed, however, and was apparently such a welcomed relief that the epic story “Enmerkar and the Lord of Aratta” even touches on the resumption. According to the epic, King Enmerkar, who reigned during the Early Dynastic II period, used a sort of “Cold War” in order to force the land of Aratta, historically said to be a source of the stone, to send him luxury goods. Using the precious materials sent by Aratta, Enmerkar would adorn various religious temples and shrines throughout his kingdom (Herrmann 1968:37):

O my sister, Inanna, for Erech
Let them (the people of Aratta) fashion artfully gold (and) silver,

Let them . . . pure lapis lazuli from the slab, . . .
Of the holy giparru where you have established (your) dwelling,
May (the people of) Aratta fashion artfully its interior.

. . .

Let Aratta submit to Erech,
Let the people of Aratta,
Having brought down the stones of the mountains from their highland,
Build for me the great chapel, set up for me the great shrine (Herrmann 1968: 37).

By Enmerkar reopening the trade connections with Aratta, lapis lazuli was able to be traded freely again and its occurrence increases in archaeological sites (Herrmann 1968:39). This interruption was also present in Egypt: “During the greater part of the Ist dynasty, and the whole of the IInd and IIIrd dynasties, there is apparently a complete absence of lapis lazuli in Egypt” (Payne 1968:58). This really indicates just how closely linked the two kingdoms were regarding not only their trade relations, but also their economic dependence on one another.

METHODOLOGY

The focus of this paper is to explore recent excavations in the ancient Near East and Egypt in order to find possible new trade routes of lapis lazuli originating from the well-known source in the Badakhshan province in Afghanistan. The methodology used in this study is twofold: first, a review on existing studies on lapis lazuli in both archaeological and textual contexts from source documents dating to 1970 and earlier, as well as a textual analysis of cuneiform and other historical documents; and second, through an analysis of specific lapis lazuli occurrences of the following sites: Tell Brak, Tarut Island, Tal-i Malyan (Anshan), and el-Tôd (See Figure 4).



Figure 4. Map of Tell Brak, Tarut Island, Tal-i Malyan, and el-Tôd (North American Cartographic Information Society 2010).

In reviewing previous studies on the subject, I have gathered information pertaining to the sources of lapis lazuli, as well as theories as to possible trade routes. This helped in gaining a better understanding of what research had been done and what was still left to be understood. Through the study of previous scholarly works, I was able to locate which previously excavated sites are already considered “working sites” (where lapis lazuli is found in unworked form) and which ones have larger amounts of lapis lazuli. Using this, along with the authors’ interpretation of possible routes from the data given, I was able to pinpoint the sites along a map in order to see where possible gaps existed or what questions may be left unanswered, such as: “Is there stronger evidence regarding the possibility of a southern trade route?” This was particularly beneficial regarding the Iranian working site of Shahr-i Sokhta, which is due south of the Badakhshan source, and would have been missed entirely with the use of a northern route.

Textual documents were also used, such as cuneiform and historical documents. Through their use, I hoped to answer some questions regarding the textual world of lapis lazuli. The first of these regarded the possibility of multiple words being used for the semi-precious stone and perhaps if any foreign influence could be seen in the words which were used. I also wanted to look at the different documents to see if there was a possible misinterpretation of lapis lazuli for another stone, such as turquoise or blue-glazed objects known as faience, made to imitate the expensive stone. These documents additionally were used to help gain a better understanding of who primarily was trading in lapis lazuli. With this knowledge, it would be possible to see which empires and kings were trading with each other, and thereby further the possibility of alternate trade routes.

Archaeologically, I looked at the various sites mentioned above, at exactly how much lapis lazuli was present, and the form in which it occurred. However, in order to get an even more precise answer as to whether there was another trade route or not, focusing on a specific time period was also important. Therefore, in order to narrow my search, I only looked at lapis lazuli that was present during its high point, roughly around the third millennium B.C. Using the resulting data, I mapped the occurrences of the stone, along with their date, to see if any possible patterns emerged.

Analyzing the lapis from a qualitative standpoint was also very important, for larger partially-worked and unworked pieces of lapis could be possible signs of a working site along the trade route, whereas smaller finds point to the end points of a route, in the manner of the Trickle Trade model mentioned above (Beale 1973:141). Tools were also considered, such as copper drills, for they also indicate the possibility that the site acted as a sort of middle-man along the lapis lazuli trade route. In order to make an attempt at relating the two artifacts, I

looked for occurrences of the drills and lapis together. Another consideration was that of microlithic borers, which were found through flotation at Tepe Hissar, found with powdered lapis lazuli still on them. However, these were only detected purely through flotation, being missed by screens, and therefore would have been removed from the archaeological record.

RESULTS

Tell Brak

The first site analyzed was Tell Brak in Northern Mesopotamia, located in present-day Syria (See Figure 4), for which I used the 2001 site report *Excavations at Tell Brak: Vol. 2: Nagar in the Third Millennium B.C.*, headed by David Oates. Excavated first by Sir Max Mallowan in the 1930s, and then later reopened and excavated over fourteen seasons from 1976 to 1993 by David and Joan Oates, Tell Brak is a third-millennium mound occupation site approximately 800 by 600 meters and about 40 meters in height. Most likely the ancient city of Nagar, Tell Brak had close contact with southern Mesopotamia, appearing to have been a “provincial administrative center” of the Akkadian Empire. More importantly, however, it was a major stop on the trade routes leading to the north and west for it was along one of many routes which led from the Tigris valley to southeastern Anatolia and western Syria (Oates et al. 2001:xxx). Whether lapis lazuli was a major part of this trade route, however, was a question that needed to be answered.

A total of 50 objects of lapis lazuli were found at Tell Brak, including unworked pieces, inlay, beads, and pendants (See Figure 5). The major occupation in which the majority of lapis lazuli occurred was known as Phase M. This phase was deemed to have been during the Akkadian Period, encompassing the dates of 2250 – 2150 B.C. However, a few pieces were also

found in Phase N (Post-Akkadian: 2100 – 1950 B.C.), and 3 were from unstratified contexts, or surface finds. Almost all lapis finds occurred in the ritual deposit known as Area SS, which is located on the southwestern end of the mound and included a courtyard and monumental building. A total of 26 lapis objects were found in the courtyard deposit of Area SS, including pieces of inlay, beads, and “chips or lumps” of lapis lazuli. On the other hand, Area FS, another courtyard deposit located on the far opposite side of Area SS, on the northeastern corner of the tell, contained only 5 pieces of lapis lazuli, mainly comprising of pendants and only one chip.

The inlay found at Tell Brak was the most frequently-occurring form of lapis, a total of approximately 24 pieces. Truthfully it is not certain that every piece of inlay found was exactly that (it is theorized that a few may be stamp seals), but they still comprise the majority of the lapis assemblage at Tell Brak. Most of the inlay has vertical carvings with a protruding spiral at its apex, a design which still needs to be deciphered in terms of meaning or what it represented in its place as inlay. Other inlay pieces are simply small fragments with the same vertical carvings on their face, in addition to a few rectangular pieces, one which is believed to have been an eyebrow inlay. None of these fragments were of any significant size, the largest being 2.5 cm long by 1.0 cm wide by 0.5 cm deep, but additionally not every piece of inlay found was documented in the excavation report, unfortunately making a true analysis of the entire lapis assemblage impossible.

The beads as well were not documented with accuracy, only being given in number. The only exception to this poor documentation includes a few rosette beads and the three lapis pendants in the form of a woman, a reclining bull, and a fly (See Figure 5). A total of fifteen beads and pendants were found in Phase M of Tell Brak, again mainly occurring in Area SS (six beads) and FS (three pendants, one bead), accounting for 1.98% of the total 775 beads and



Figure 5. Lapis lazuli artifact drawings from Tell Brak, excluding drawing no. 89 (Oates et al. 2001:567).

pendants found in that phase. Additionally three beads were found in each Phase N and the surface of the site, making a total of 21 beads at Tell Brak (1.92% of the total 1090 beads, pendants, and buttons). Interestingly, no beads or any finds of lapis lazuli were found in Phase L (Pre-Akkadian: 2400 – 2250 B.C.).

Most importantly, however, were the chips or lumps of lapis found at Tell Brak. A total of twelve chips of lapis were found. As mentioned earlier, only one of these chips was found in Area FS, in the lower fill of the temple cella of Room 42. The other eleven chips or lumps were found in Area SS. It is never revealed by the author what constitutes a chip or a lump, how many of each was discovered, nor their quality, weight or even their dimensions. Therefore, again, an accurate portrayal of the amount of unworked lapis lazuli at Tell Brak is nearly impossible, for there is no indication of the size of the pieces. With the data given I can only guess as to the relative size of the lapis, and believe them to be no larger than two or three inches squared. If there were any large pieces found, I believe they would have been significant enough to include in the site report.

Regarding possible carving tools, there were eight copper or bronze chisels found in Area FS, but only one found in Area SS. So although tools were found, they were found in the deposit which only contained one piece of unworked lapis in addition to three pendants and one bead (also possibly a pendant). It is even confirmed in the site report that “none of the small tools come from what can be identified specifically as workshop contexts” (Oates et al. 2001: 241). And although some tools were found in ritual deposits such as those above, it is proposed that they were used for a variety of materials and were multi-purpose. While flotation was conducted at Tell Brak, no microlithic borers were found such as those at Tepe Hissar (Oates et al. 2001).

Tal-i Malyan

Tal-i Malyan, ancient Anshan, is the second site analyzed in an attempt to see if there was a possibility of another trade route, for it is located in southwestern Iran and would have possibly been a major center for the trade of lapis lazuli regarding a southern route (See Figure 4).

Although first occupied in the Jari Period of c. 5500 B.C., the period in which the lapis lazuli finds occur at the Elamite city of Anshan primarily date to the Banesh Period (3500-2800 B.C.). It was during this period that ancient Anshan was involved with its neighbors known as the Sumerians, in addition to its sister-city Elam. Located in the highland valleys of the Zagros Mountains, Tal-i Malyan is a 130-hectare habitation mound similar to that of Tell Brak with a possible occupation range from 4,000 to at most 16,000 inhabitants. Most importantly, however, Anshan was known as a center for trade and the production of certain crafts (Sumner 2003:1-2). Whether or not this included the trade and/or craft specialization of lapis lazuli is not known. However, Proto-Elamite tablets found at the site link Tal-i Malyan to a large number of sites known to be involved in the trade of lapis lazuli including Tepe Sialk, Tepe Yahya, and most importantly Shahr-i Sokhta (Nicholas 1990:1).

Most of the results of the excavations of Tal-i Malyan, conducted from 1971 to 1978 by William M. Sumner, were published in three volumes. Of these three I had access to the first, *The Proto-Elamite Settlement at TUV* (1990) by Ilene Nicholas and the third, *Early Urban Life in the Land of Anshan: Excavations at Tal-i Malyan in the Highlands of Iran* (2003) by Sumner himself, which discusses the other operation at Tal-i Malyan designated ABC. Other articles written by Sumner in the journal *Iran* unfortunately proved inaccessible. Still, the site reports were of greater detail and length than any of Sumner's published articles, and logic dictates that

more information would therefore have been included in his site reports. The following are the results of the analysis of the lapis lazuli finds at Tal-i Malyan taken from those reports.

The two main areas excavated at Tal-i Malyan are that of TUV and ABC. ABC was found to be composed mainly of high status residences and public buildings, with all of the lapis lazuli occurring in Stratum 8C of Building Level 2, a massive level which extended beyond the perimeters of the excavation. Whereas ABC was the area of main occupation, TUV was seen as an “adjacent ancillary settlement” (Nicholas 1990:2), at which lapis lazuli was found throughout all levels. The finds were certainly not as numerous as expected, with four total pieces of lapis lazuli found at the ABC operation and five total pieces at TUV (Sumner 2003; Nicholas 1990).

The four pieces of lapis lazuli at ABC included two beads (1.44% of the total assemblage of 138 beads) and two unworked pieces (1.55% of the total 129 of pieces of raw material), all found in the same level but in different deposits. The beads were found in a deposit classified as DC37 (Rubble on Floors or Surfaces) whereas the pieces of raw lapis lazuli were found in a deposit classified as DC29 (Clay or Plaster Floors), where it is believed they were most likely embedded in the floor at the time the area was in use (Sumner 2003). The quality of the lapis was not given, and unfortunately neither the beads nor the unworked pieces were weighed or measured, so once again, I was faced with no way to tell not only how large the beads were but more importantly how large the pieces of unworked lapis were. Although I am able to find that the beads constituted 1.44% of the total beads, and that the raw lapis only 1.55% of the total number of pieces of raw material found at ABC, it is impossible to say if that percentage is a true representation of the amount of raw lapis lazuli versus the amount of other raw materials for they could be the size of either tiny fragments or large chunks. The attempt at figuring the size of the raw lapis is made even more problematic in that the author does not even use any term to

describe the raw lapis such as “chips,” “fragments,” or “lumps,” but instead just states that “unworked specimens” of lapis lazuli were found (Sumner 2003:114). Again, I am forced to conclude that the pieces must have been rather small, for if they were of any size of significance, more attention would have been accorded to them.

The lapis lazuli at TUV is equally as disappointing with only a total of five pieces having been found. The four beads, 1.29% of the total 31 beads found at TUV, were found in three different levels. Three were found in Building Level I: one in Well 199 and two in Room 89; the last bead was found in Area 379 of Building Level II. The unworked lapis was found in Room 215 in Building Level IIIA (approximately 3200 B.C.), and is assumed by Nicholas to have been meant for bead manufacture. The unworked lapis at the site does account for 7.6% of the total 13 unworked pieces of varying material at TUV, however again it should be reiterated that TUV was a secondary settlement to that of ABC, where the total 129 pieces of raw material points to it being the more active of the two sites, at least regarding craft specialization (Nicholas 1990).

When it comes to tools of both TUV and ABC, none have been recovered in the same deposits as lapis lazuli, neither with the unworked lapis nor even the beads. Whereas flotation was conducted at TUV, samples having been taken from screened soil in addition to the soil from hearths and ash pits, no flotation was undertaken at ABC. No mention of chisels or microlithic borers is mentioned in the TUV site report, and it is a shame that no flotation was done at ABC for the presence of such tools mentioned above would have solidified the assumption that Tal-i Malyan was directly involved in the manufacture and trade of lapis (Nicholas 1990).

Tarut Island

The third site studied in the attempt to find new trade routes of lapis is Tarut Island, located off the coast of Saudi Arabia, just north of modern-day Bahrain (See Figure 4). Dating to the later part of the third millennium B.C. to the first part of the second (c. 2500-1500 B.C.), Tarut Island (part of the ancient land of Dilmun) has really been an unexplored site regarding the trade of lapis lazuli. The excavations, which took place from the spring of 1975 to the fall of 1976, were undertaken by the Department of Antiquities and Museums of Saudi Arabia as a salvage project. The northwestern corner of ar-Rafi'ah, an oasis garden area only .75 kilometers from the southeastern coast of Tarut, is the area in which almost all of the lapis lazuli excavated was found. The site appears to be part of a larger habitation mound, but has unfortunately been disturbed over the years as more soil for the modern garden was needed and irrigation introduced (Piesinger 1983: xi, 173). The only site report on these excavations was in fact a dissertation submitted by Constance Piesinger in 1983 entitled *Legacy of Dilmun: The Roots of Ancient Maritime Trade in Eastern Coastal Arabia in the 4th/3rd Millennium B.C.*

The lapis found in the ar-Rafi'ah gardens is perhaps the most interesting out of all of the lapis from the other sites already presented here. A total of nineteen finds of lapis lazuli were found, eighteen being excavated at ar-Rafi'ah and one being discovered at the nearby site of Umm ar-Ramadh. Only two of these total nineteen pieces were beads, which made up 28.57% of the total bead assemblage. However, most importantly, the other 17 finds were in fact chunks of lapis lazuli. Although no indication of the quality of lapis or dimensions was given of the apparent "chunks" of lapis lazuli, the author nonetheless does use that word to describe them, even calling some of them "large chunks." This leads me to believe that the raw material found was definitely of at least some significant size because of their frequency and the terminology

which Piesinger uses to describe them. Also the fact that there were seventeen total raw chunks of lapis makes Tarut Island stick out among the many possible sites involved in the trade of the semi-precious stone. Steatite, another stone used in much the same way as lapis lazuli, was also found in large quantities in a raw state (45 chunks in all) along with many carved and plain vessel fragments. Lastly, no partially worked pieces of lapis were found.

Although there were 32 broken copper nails and six whole nails, it is highly unlikely that they played any role in accordance with the lapis lazuli of Tarut Island, for they have a blunt end and were more likely used in construction rather than something like a chisel or borer which would be used in the production of finished lapis objects. Flotation was not done at ar-Rafi'ah or anywhere else on the island, and so no other potential lapis-working tools were found. The flotation, unfortunately, was not the only excavation method lacking at Tarut Island. As Piesinger relates, part of the first level was not even screened, most likely due to the fact that only five days were allotted for the area, and therefore a fully complete excavation would be nearly impossible. It was not until they started to excavate the first level that they realized the need for screens, and even then only every third or fourth wheelbarrow-load of the last twenty centimeters of Level 1 was screened. Level 2 was screened in its entirety, but only about one-third of Level 3 was even screened. This, in addition to cutting trenches or sondages in half in order to reach the base of the site, is evidence of an attempt to reach as much archaeological material as possible before the gardening practices of the inhabitants of the island destroyed the site entirely. It would be interesting to see how much more material would have been found if proper excavation techniques would have been practiced, and the amount of time to excavate extended.

El-Tôd

The last site analyzed is that of el-Tôd in what was considered ancient Upper Egypt (See Figure 4). However, it should be noted that this site has to be seen as more of a supplement to the rest of the study, for the excavations undertaken by the Louvre Museum from 1981 to 1991 proved inaccessible. First discovered in 1936, the most fascinating find of el-Tôd is what is known as the “Treasure of Tôd” (See Figure 6). Dating to the Twelfth Dynasty in Egypt, the “treasure” was found in the tomb of Amenemhat II (c. 1919 – 1885 B.C.) (Aruz 2003:69). Comprised of four bronze chests, the find included not only pieces of silver and gold, but also thousands of



Figure 6. Variety of artifacts from the Treasure of Tôd (Aruz 2008:67).

pieces of lapis lazuli, including worked pieces such as inlay, pendants, amulets, beads, and cylinder seals with inscriptions in cuneiform; the latter of which were assumed to be intended to be recycled by the craftsmen of the Egyptian pharaoh (Aston et al. 2000: 39-40).

More importantly, however, many unworked fragments and blocks of lapis were also found, one even measuring 4.8 cm long by 7.7 cm wide. Although the color of the lapis lazuli in the Tôd Treasure ranges from a pale grey to a deep blue ultramarine, the quality of the lapis is relatively poor, many of the beads being a grey color with large quantities of brownish pyrite (See Figure 6) (Aruz 2008:69). Still, such a large amount of lapis lazuli found so far south in Egypt, even if of poor quality, must be considered in the trade of the semi-precious stone throughout the ancient Near East and Egypt.

Textual Results

The textual results of the trade of lapis lazuli have also been particularly beneficial in figuring out if there are possible different trade routes other than those already proposed. Although no new texts have been translated which mention lapis lazuli, the study of previously translated documents provided a good deal of new perspective on the subject of the lapis trade. Lexically, lapis lazuli appears in cuneiform documents in the following translations, taken from Lissie Von Rosen's work *Lapis Lazuli in Geological Contexts and in Ancient Written Sources* (1988). In Akkadian, lapis appears as the word "uqnû," meaning mainly "blue." In Sumerian, it appears as "ZA.GÌN," and in Ugaritic, lapis is read as "ignu." In Hittite it was known as "ku(wa)nnas," and in Egyptian it is seen as "ḥ-s-b-d." Additionally, the close connection between Sumer and Akkad can be seen in other Akkadian words for lapis lazuli such as "zaginnu," "nazaginakku," "zagindurû," and "zagingutû," all of which incorporate the Sumerian word "ZA.GÌN" (Von

Rosen 1988:21-25). This also gives further evidence to the intimate relationship between the two kingdoms of Southern Mesopotamia who, given their close proximity to one another, would have frequently traded practically everything, including lapis lazuli.

Regarding the possible false interpretation of lapis lazuli as some other stone such as turquoise, nothing was found that led me to believe that the ancients could have misinterpreted lapis lazuli for some other stone. This is for a few reasons. Firstly, although “uqnû” translates directly to “blue,” its context in documents regarding trade and sources is such that it is strongly believed to mean actual lapis lazuli. However, other words having roughly the same meaning, such as “ḥ inziribu” meaning “blue-green” and “ḥ ašmānu” meaning both “a stone” and “a blue-green color” cannot be accorded to lapis lazuli or other similarly-colored stones such as turquoise due to the lack of context (Oppenheim 1995:142, 195 [1956]).

Secondly, the ancient people of Mesopotamia and Egypt could tell the difference between real and fake lapis lazuli. This is reflected in the fact that the modifier “kūru,” (meaning “kiln” or “furnace”) when added behind “uqnû” changes its meaning to “artificial lapis” (Oppenheim 1995:239 [1956]). This translation, in my opinion, is most likely referring to faience, for a blue faience glaze is achieved by melting different minerals together in a kiln. The following Babylonian cuneiform text gives a detailed account of the method of manufacture:

If you wish to make clear lapis lazuli . . . you must crush and mix together 10 minae of ammurraku mineral, 15 minae of ash of “Salzkraut”, (i.e. sodium-containing ash of the saltcontaining [sic] steppe plants), 1 2/3 minae of “Weisskraut”. Put the mass into a furnace/kiln, whose 4 ventilation holes are cold, and watch it carefully. A good smokeless fire must be lit and the mass heated until it is white hot. It must then be taken out, ground and poured into a good mould. Later, the mass must be put back into a cold

furnace/kiln, reheated until it is white hot and then applied to the bricks as enamel (Von Rosen 1988:20-21).

With the addition of the modifier “kiln/furnace” to “lapis lazuli,” it was acknowledged that it was not true lapis, but indeed faience. The difference would be worthy of note in many instances, particularly since it was so highly valuable, and therefore a confusion between the two would seem to be rare.

Textually, lapis lazuli was mentioned in a variety of documents, including ritual texts, mythologies and epics, and royal inscriptions, to name a few. Some of these writings were inscribed on actual objects such as cylinder seals, maces, and even building foundations, but overall most cuneiform documents were written on tablets of baked and unbaked clay.

Regarding ritual texts, lapis was often called for in incantations as purifying agents and for protection against curses and death (Von Rosen 1988:30). Lapis lazuli also appears in multiple epics and myths which were passed down from generation to generation in Mesopotamia, including the “Enmerkar and the Lord of Aratta,” “Gilgamesh,” and “Etana” epics as well (Dalley 1991).

Regarding inscriptions, the two striking examples come from the kings Gudea of Lagash and Sargon of Akkad. First, Gudea relates in a royal inscription (c. 2130 B.C.) that “copper and tin, blocks of lapis lazuli . . . bright carnelian [came] from Meluḥ ḥ a”⁶ (Von Rosen 1988:39). Similarly, other inscriptions mention lapis lazuli coming from the land of Meluḥ ḥ a, generally considered today to be the Indus Valley. It should be noted, however, that because Meluḥ ḥ a has not been definitively identified, there is still some speculation of the exact location of the area. Regardless, by far the most widely accepted identification of Meluḥ ḥ a, the one with which I am also in agreement, is with the Indus Valley (Moorey 1999:xxii). The inscriptions linking

⁶ Sumerian: urudu nagga lagab-za-gìn-na kù-NE gug-gi-rin Me-luḥ -ḥ a-da (Von Rosen 1988:39).

lapis with Meluḥ ḥ a read as follows: “carnelian and lapis lazuli from the Mountain-(land) of Meluḥ ḥ a,”⁷ and “may the magilum-ships of Meluḥ ḥ a be loaded with gold, silver and lapis lazuli, may they bring it to Nippur, to Enlil, the King of all the foreign lands” (Von Rosen 1988:39).⁸ The royal inscriptions of Sargon of Akkad only help to confirm the importance of lapis lazuli in the sea trade with Meluḥ ḥ a: “he moored ships from Meluḥ ḥ a, Magan and Dilmun at the quay of Akkade” (Von Rosen 1988:38).⁹ Clearly, more than any other region attested to historically, Meluḥ ḥ a has strong connections with the lapis lazuli trade, a fact that would prove to be quite interesting in the course of this study.

DISCUSSION

When compiling all of my results, both archaeological and textual, I am led to a number of different conclusions regarding the trade of lapis lazuli in the ancient Near East and Egypt. None of the sites I chose for this study had thorough information on their finds of lapis lazuli, having no weight of the lapis lazuli material let alone dimensions. Tell Brak was the only site with some dimension to their lapis finds, but these were limited to only the interesting pieces including pendants and oddly shaped inlay fragments (See Figure 5). Because the authors of the site reports gave little to no information regarding the number or size of lapis lazuli finds, I was left to theorize the involvement of the four sites in the trade of the semi-precious stone.

Beginning with Tell Brak, the site has always had, in previous studies, an affiliation with the trade routes of lapis. I am led to agree with this assessment, for the Akkadian level at Tell

⁷ Sumerian: na₄.gug.na₄.za-gìn kur Me-luḥ -ḥ a-ta (Von Rosen 1988:39).

⁸ Sumerian: gis.má-gi₄-lum Me-luḥ -ḥ a^{ki}-a-ke₄ guškin ku-babbar za-gìn-na bala-šè hé-ak-e ^dEn-lil lugal kur-kur-ra-ra Nibru^{ki}-šè ḥ è-na-ab-túm (Von Rosen 1988:39).

⁹ Sumerian: má Me-luḥ -ḥ a^{ki} má Ma-gan^{ki} má telmun^{ki} kar ag-ge-dè^{ki}-ka bí-kéš (Reiner et al. 1999:94).

Brak indeed had lapis finds. Additionally, the presence of “chips and lumps” of lapis lazuli, which occurred mainly in the ritual deposit Area SS, still connects Tell Brak with the trade of lapis. Even though the pieces of lapis found were small, this still concurs with the general principle of Trickle Trade, for the further a raw material gets from its source, the smaller the unworked pieces become. Nonetheless, the conclusion that Tell Brak was near the very end of the lapis lazuli trade route because of the amount of raw material is still pure conjecture, for the true size of these “chips and lumps” of lapis lazuli remains an enigma.

Although Tell Brak is located further north, near Tepe Gawra, the trade most likely came from the South, to where the control of lapis lazuli had shifted during the Jemdet-Nasr period. This is further strengthened by the fact that the reclining bull pendant found in Area FS (See Figure 5) is quite close to those from the jewelry hoard of Tell Asmar (ancient Eshnunna). These pendants in turn are similar to those found in the Royal Cemetery at Ur (excavated by Sir Leonard Woolley in the 1920s and 30s) (Oates et al. 2001:227-228), and the similarity between all three points to them having been most likely manufactured in one place, being traded in finished form throughout Mesopotamia. Regardless, pieces of raw lapis must have also been traded along these routes because of the unworked fragments of lapis lazuli at Tell Brak.

Regarding manufacture, David Oates states in his site report that “the presence of unworked chips and lumps of lapis such as those in the SS deposit indicates that lapis lazuli was worked on site” (Oates et al. 2001:232). However, the exact location of where this lapis was worked remains elusive for a few reasons. As stated above, Oates came to the conclusion that none of the small tools excavated were in contexts which pointed to that specific area being a workshop. Additionally, the only tools found with lapis were in Area FS, where although there were eight copper/bronze tools in total, they were only in conjunction with one unworked chip,

three pendants, and one bead of lapis lazuli. If Area FS did include a working site of lapis lazuli, more unworked fragments would have been found with the remaining tools.

Interestingly, Tal-i Malyan did not produce as many pieces of finished or raw lapis lazuli as I had expected, only having nine total finds of the material. One possible explanation of this, other than looting,¹⁰ is the possibility that the lapse in the trade of lapis lazuli from c. 3000 – 2800 B.C., as discussed above, was in reality strongly affecting the region. However, this is not definite, for the site dates to the Banesh Period (3500-2800 B.C.), and although the last two hundred years of the site coincide with this lapse in trade, it still does not explain the severe absence of lapis lazuli objects throughout the archaeological record. Another possibility, however, is that William M. Sumner simply did not discuss all of the lapis found at the site, for he often claimed that “a few beads of lapis lazuli were found” (Sumner 2003:114) without giving an exact size or even number. Also, the subject may have been discussed in more detail in one of his journal articles. However, I find this latter proposal unlikely for if the finds of lapis were of any large quantity, it would have been more logical to add it into the actual site report.

Using the Trickle Trade model, the close proximity of ancient Anshan to sites such as Tepe Sialk, Tepe Yahya, and particularly Shahr-i Sokhta should mean the presence of more and larger pieces of lapis lazuli if the city was in fact along its trade route, but this is not the case. If large quantities of lapis were found at Tal-i Malyan, it would have been noteworthy enough to devote at least a small section to the finds. Although some raw lapis lazuli was present at the site, the fact that there are no tools found with any of the lapis finds and the size of the raw lapis is unknown, I am forced to conclude based on the given evidence (or lack thereof) that the site of

¹⁰ Although looting may seem a viable explanation, it in fact does not explicate the sheer lack of lapis lazuli at a site which was purported to be a center of trade and craft specialization.

Tal-i Malyan, at least during the Banesh period, was not as heavily involved in the trade and/or working of lapis lazuli.

Regarding el-Tôd, although it did not fit into the analysis due to the inaccessibility of the site report, I still kept the site in the back of my mind throughout this study. The fact that the raw lapis in the treasure was of such poor quality is interesting to say the least. One possible explanation is that it was a tribute between kings, and the king with whom Amenemhat II was conducting tribute gave the pharaoh the poorer quality lapis while keeping the purer lapis for himself. Another explanation, however, is the possibility of a nearby mine, a possibility which may need to be reevaluated. Although some locations in Egypt such as the Kharga Oasis have been disproved, the Uweinat Oasis theory has yet to be analyzed geologically in order to ascertain whether lapis could have formed there at some point in the past. The Trickle Trade model would indicate that by the time lapis reached Egypt, it would be of a much smaller size compared to local materials. However, if the fairly large piece of raw lapis (4.8 cm x 7.7 cm) from the Tôd treasure were from the Badakshan or even Pamir source, it would seem to go against the trade theory, particularly since smaller and less numerous pieces of lapis lazuli were found at the closer site of Tell Brak. This, in my opinion, again points to the possibility of a closer source of low-quality lapis lazuli, a source perhaps in Egypt.

The most interesting conclusion after gathering information for this study is in fact not regarding a trade route by land, but by sea. The translations of the texts concerning both lapis lazuli and the land of Meluḥḥa first caught my eye, for the study of trade routes by sea has not been as thoroughly undertaken as trade routes by land. Through the texts above, it is generally accepted that lapis lazuli was a commodity that came from Meluḥḥa, a land considered by most today to be the Indus Valley. It is my proposal, therefore, that lapis reached Mesopotamia

through the sea routes of the Persian Gulf. With Badakhshan as the source, the ancient traders would have taken the nearby Panjshir River and connected to the Kabul River, the latter of which ultimately connects with the Indus River. This would have taken the traders through modern-day Pakistan, leading to the mouth of the river and ultimately out into the Arabian Sea where they made their way to Mesopotamia (See Figure 1). Additionally, since the Kabul River swells during the summer because of melting snow from the mountains, a good deal of the lapis trade by boat would have occurred during this season. However, even during the winter months, I still believe this route would have been preferable to taking a route across the Iranian Plateau and Zagros Mountains. By following the Kabul River to the Indus River, not only would a water source always be at hand, unlike the more arid climate of Iran, but the terrain would be less difficult to traverse as well (Markham 1879).

This study also leads to the conclusion that Tarut Island was a common port landed by the Meluhites because of the large number of unworked “chunks” of lapis lazuli found on the site. Interestingly, there was only one lapis bead found during excavation of the ar-Rafi’ah gardens, which leads me to conclude that the manufacture of lapis was not all that common, the inhabitants of the island simply acting as middlemen in the trade network instead of consumers. Although this is not concrete due to the poor nature of the excavations, Piesinger still did screen part of the site, and it would seem that more worked pieces of lapis or at least beads would have been found if the ancient people of Tarut Island were involved in the production of lapis lazuli.

SUGGESTIONS FOR FUTURE RESEARCH

The concept of a trade route by sea, leading from the Badakhshan mines in modern-day Afghanistan, down the Panjshir, Kabul, and Indus Rivers and into the Arabian Sea to Mesopotamia, is a possible route that in my belief deserves further exploration. In order to gain an accurate picture of whether or not this was an actual trade route of lapis lazuli, an analysis of sites along these rivers would need to be undertaken. Sites along the Indus River and its mouth would be of particular interest, for cities in close proximity to the river would be strong candidates for having participated in the trade network of lapis lazuli. Overall, the Indus Valley is an area which needs further study in general.

However, in order to be able to analyze these sites regarding their role in the trade of lapis lazuli, thorough excavations need to be conducted in the first place. Although Piesinger was facing salvage operation which gave her a limited time to excavate the ar-Rafi'ah gardens on Tarut Island, the practice of inadequate and partial excavations is all too common throughout the ancient Near East and Egypt. One cannot gain a complete understanding of any site without first conducting a thorough excavation of it, a fact that will hopefully lead to thorough excavations eventually becoming standard in the future excavations of the Indus Valley.

Along with the need for more comprehensive excavations also comes the need for flotation. Whereas some of the sites I studied did conduct flotation, the practice is not universal and is often ignored. Unlike screening, flotation does not really allow for excuses regarding a shortage of time, for the soil from features can simply be stored until there is sufficient time to actually float the material. Even the tiniest piece of cultural material may have a pivotal role in

the analysis and history of the site, much like the microlithic borers found at Tepe Hissar by floatation. The tiny borers, which would not have been found by screening, bring craft specialization at Tepe Hissar to the forefront, for it is impossible to ignore the lapis lazuli powder still stuck to their points. Overall, floatation can truly prove to be indispensable in situations such as these.

After conducting more thorough excavations along with floatation, the next necessary step is to have a more accurate recording of all materials found at the site. Although most site reports studied gave me a general idea of how many pieces of lapis lazuli were found, there was a great deal of information still lacking. This included most notably the absence of weight of the raw lapis lazuli found, their dimensions, and even simply a picture showing what the “chip,” “lump,” or “fragment” of lapis lazuli looked like. The Tell Brak site report did give some pictures of the lapis lazuli finds including a pile of “chips” of raw lapis. Oates also did include both pictures and artifact drawings (See Figure 5) of some of the lapis finds but these were only the pieces that were deemed important enough to include in the site report. Therefore, not every piece of lapis was recorded, and although a picture of some of the pieces of raw lapis from the site were included, they were shown piled on top of each other, making an accurate measurement impossible. Overall, simply more thorough documentation of the entire archaeological assemblage needs to become common practice for all Near Eastern archaeologists and Egyptologists alike.

The last suggestion for future research regarding the study of lapis lazuli in the ancient Near East takes place in the lab. As Casanova has stated regarding Tepe Sialk, “As the chemical signatures of deposits are not necessarily homogeneous throughout, we may simply need more mining samples to provide a good match for the Tepe Sialk sample” (Casanova 1992:53). More

samples from confirmed mines need to be collected and analyzed chemically against archaeological finds of lapis lazuli in order to better understand from where the people of that site were actually getting their lapis lazuli. This would be greatly beneficial to the study of ancient trade networks of lapis, particularly when it comes to sites that are further away from the sources in and around Afghanistan. Whereas Casanova studied archaeological samples from Shahr-i Sokhta and Tepe Sialk, which are located near the mines of Badakhshan and the Pamir Mountains, I believe the same practice should be done to samples from sites such as Tell Brak and Tarut Island. Additionally, the sites containing lapis lazuli which are located in between the more distant sites and the mines should also have their lapis finds analyzed chemically.

Lastly, another benefit of this chemical analysis is the ability to link archaeological lapis to no known mines. The lapis lazuli from the Treasure of Tôd, for example, would be of particular interest when it comes to chemical analysis, for if it does not match any of the samples from those confirmed mines, it could in fact lead to the conclusion that there was a closer source to Egypt that had been mined out completely. On the other hand, however, the lapis from the treasure could match a source of some distance, which would attest to the immensity of the trade networks of lapis in addition to the extensive ties between peoples of the ancient world. In the end, through the exhaustive use of chemical analysis, it is hoped that the overall picture of the trading networks of lapis lazuli will someday be more complete.

CONCLUSIONS

The trade of lapis lazuli in the ancient Near East has been of considerable interest ever since Georgina Herrmann published her article in 1968. Whereas the locations of mines of the semi-precious stone are more easily studied through the use of geology and science, the route which lapis lazuli took from there remains a difficult question. Although nearby sites were most likely part of that trading network due to the larger amounts of worked and unworked lapis present, as one analyzes the sites located even further away from the source, it becomes more and more difficult to be able to decipher the exact trade route along which lapis lazuli traveled. This becomes even more difficult with inaccurate recordings of inadequate excavations, and the attempt to pinpoint an exact trade route becomes almost impossible.

Although most of the data gathered throughout this study proved inconclusive, it is my conclusion that all of the sites studied were still involved in the trade of lapis lazuli, for the mere presence of the stone denotes participation. Tell Brak seems to have been near the end of the trade network, for it contained a mostly smaller finds of lapis including a number of raw lapis “chips and lumps.” The connection between the bull pendants from the Royal Cemetery at Ur and Tell Brak strongly point to lapis making it to Southern Mesopotamia (by land or sea) and then on to Northern Mesopotamia, a conclusion which concurs with the shift towards southern control of the trade proposed by Herrmann above. Tal-i Malyan, on the other hand, may not have had such a strong connection with the lapis lazuli trade as previously believed, due to the lack of finds one would expect with the site being closer to the source than the rest of the sites studied here. Regardless, the mere fact that lapis lazuli appears at Tal-i Malyan points to the fact

that the city had at least some part in its trade and was therefore located at some point along an actual trade route moving through the South, even if that location was towards the end of the network. On the opposite end, the lapis found at el-Tôd was most likely either a tribute or was possibly also obtained through an extensive trade network. Either way, whether the source from which this lapis came was a mine nearer than those in Afghanistan, or the source was indeed the Badakhshan province, is a question which can hopefully be answered through future chemical analysis.

In the end, however, the most promising conclusion of this study is the possibility of the use of a sea route in the trade of lapis lazuli. When combining the archaeological data of Tarut Island with the textual evidence for Meluhha being the source of lapis lazuli and the importance of Sargon controlling their ships, the likelihood of lapis coming to Mesopotamia through a sea route becomes even more enticing. Through future research of sites in the Indus Valley, along with the practice of more thorough excavation techniques and chemical analyses, the movement of lapis lazuli throughout the ancient Near East and Egypt will hopefully become clearer. Additionally, it is hoped that the new thoughts presented here have contributed, in at least some small way, to the overall understanding of the ancient Near Eastern trade of the legendary blue semi-precious stone known as lapis lazuli.

APPENDIX

FULL CHRONOLOGIES OF MESOPOTAMIA AND EGYPT

Mesopotamian Chronology:¹¹

(a) *Prehistoric*¹²

Aceramic Neolithic	c. 8000-6500 B.C.
Hassuna/Samarra/Halaf	c. 6500-5500 B.C.
Ubaid	c. 5500-4000 B.C.
Uruk (Early/Middle)	c. 4000-3500 B.C.
Uruk (Late/Jemdet-Nasr)	c. 3500-3000 B.C.

(b) *Historic*

Early Dynastic I	c. 3000-2750 B.C.
Early Dynastic II	c. 2750-2600 B.C.
Early Dynastic III	c. 2600-2350 B.C.
Akkadian (or Sargonic)	c. 2350-2100 B.C.
Ur III	c. 2100-2000 B.C.
Isin-Larsa/Old Babylonian/Old	c. 2000-1600 B.C.

Assyrian

¹¹ Taken from P.R.S. Moorey, “*Ancient Mesopotamian Materials and Industries: The Archaeological Evidence*”

¹² The dates of the Prehistoric Period are, as Moorey states, “insecurely based” on C14 dates (Moorey 2000:xix)

Kassite/Mitannian/Middle Baby- c. 1600-1000 B.C.
lonian/Middle Assyrian

Egyptian Chronology:¹³

Prehistoric Period before c. 4000 B.C.

Faiyum A Neolithic/el-Tarif

Merimde Neolithic/Badari

Predynastic Period before c. 3000 B.C.

[Omari A]/Naqada I

Maadi/Naqada II-III

Early Dynastic Period c. 3000-2575 B.C.

‘0’/1st Dynasties c. 3000-2770 B.C.

2nd Dynasty c. 2770-2649 B.C.

3rd Dynasty c. 2649-2575 B.C.

Old Kingdom c. 2575-2134 B.C.

4th Dynasty c. 2575-2465 B.C.

5th Dynasty c. 2465-2323 B.C.

6th Dynasty c. 2323-2150 B.C.

7th/8th Dynasties c. 2150-2134 B.C.

First Intermediate Period c. 2134-2040 B.C.

9th/10th Dynasties (Herakleopolitan) c. 2134-2040 B.C.

¹³ Taken from Nicholas Reeves, “*Ancient Egypt: The Great Discoveries: A Year-by-Year Chronicle*”

11 th Dynasty (Theban)	c. 2134-2040 B.C.
Middle Kingdom	c. 2040-1640 B.C.
11 th Dynasty (all Egypt)	c. 2040-1991 B.C.
12 th Dynasty	c. 1991-1783 B.C.
13 th Dynasty	c. 1783-after 1640 B.C.
14 th Dynasty	Minor kings contemporary with the 13 th and 15 th Dynasties
Second Intermediate Period	c. 1640-1532 B.C.
15 th Dynasty (Hyksos)	c. 1640-1532 B.C.
16 th Dynasty (minor Hyksos)	Contemporary with the 15 th Dynasty
17 th Dynasty (Theban)	c. 1640-1550 B.C.
New Kingdom	c. 1550-1070 B.C.
18 th Dynasty	c. 1550-1307 B.C.
19 th Dynasty	c. 1307-1196 B.C.
20 th Dynasty	c. 1196-1070 B.C.
Third Intermediate Period	c. 1070-712 B.C.
21 st Dynasty	c. 1070-945 B.C.
22 nd Dynasty	c. 945-712 B.C.
23 rd Dynasty	c. 828-712 B.C.
24 th Dynasty (Sais)	c. 724-712 B.C.
25 th Dynasty (Nubia and Thebes)	c. 770-712 B.C.
Late Period	c. 712-332 B.C.
25 th Dynasty (Nubia and all Egypt)	c. 712-657 B.C.

26 th Dynasty	c. 664-525 B.C.
27 th Dynasty (Persian)	c. 525-404 B.C.
28 th Dynasty	c. 404-399 B.C.
29 th Dynasty	c. 399-380 B.C.
30 th Dynasty	c. 380-343 B.C.
Second Persian Period	c. 343-332 B.C.
Greco-Roman Period	c. 332 B.C. – A.D. 395
Macedonian Dynasty	c. 332-304 B.C.
Ptolemaic Dynasty	c. 302-30 B.C.
Roman Emperors	c. 30 B.C. – A.D. 395

It should also be noted for the reader's benefit that the above periods can also be placed into the chronological horizons used elsewhere in the Near East, which include the Aceramic/Ceramic Neolithic (c. 8000–4500 B.C.) followed by the Chalcolithic (c. 4500–3300 B.C.), the Early Bronze Age (c. 3300–2000 B.C.), Middle Bronze Age (c. 2000–1550 B.C.), Late Bronze Age (c. 1550–1150 B.C.) and finally Iron Age (c. 1150–550 B.C.) (Moorey 2000:xix).

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