From Ancient to Modern Logistics: Evidence in Ancient Egypt & the Early Development of Marketing

Jennifer A. Pelletier
College of Business, University of South Florida, Tampa, Florida, USA

Abstract
Purpose- The purpose of this paper is to investigate how the Ancient Egyptians utilized logistics, which will shed some light on the maturation of modern business logistics.
Methodology/approach- This study was based on review of archeological evidence as well as books and articles written about the history of logistics and marketing.
Findings- Archeological evidence indicates that the Ancient Egyptians were highly skilled in designing logistical systems. Further, the core goals (transportation, sourcing of raw materials, distribution of the essentials of life and war) of logistics found in Ancient Egypt have largely remained the same in modern business logistics- only the technology and execution of those goals has matured.
Implications/limitations- This study suggests that better understanding logistics in ancient cultures could enrich our understanding of modern business logistics. Also, growth in international and global logistics emphasizes integration of logistical activities, which will require more behavioral and theoretical research. Space constraints limit the information here primarily to a discussion of the four core goals of logistics in modern business logistics.
Originality/value- Although much has been written about the history of modern business logistics, no known work has examined the history of logistic practices in Ancient Egypt or compared Ancient Egyptian logistical practices to modern business logistics.
Keywords- history of logistics, Ancient Egyptian logistics, development of marketing, marketing history
Classification- Research Paper

Introduction
In 1911, a British Scientist named Marc Ruffer made the bold suggestion that Ancient Egyptian mummies suffered from Atherosclerosis (Finch, 2011). Ruffer’s argument received mixed support, as infections were believed to be the common cause of death in ancient times. Until 1911, atherosclerosis was believed to be a modern disease caused by processed foods. However Finch (2011) suggests that advanced atherosclerosis was present in Ancient Egyptian elites by 35-50 years of age, highlighting the age of a ‘modern disease.’

While the topic area of this paper is not health or biology, the emphasis of ancient roots of atherosclerosis provides an interesting parallel for marketing. As Demirdjian (2005) outlines, many contemporary marketing scholars- including Converse, Witzel, Fullerton and Bartels- define the beginning of marketing around the turn of the century. However, in light of growing archeological evidence, 1900 only marks the beginning of ‘modern marketing.’ Demirdjian conducts a review of many archeological digs of Mesopotamia, which suggest that aspects of marketing have existed ever since man became sedentary and developed agriculture. The discovery of Urartu, now thought to be the most ancient city in Mesopotamia, suggests that some aspects of marketing could date back as far as 7,000 B.C. The Urartu often lacked many natural resources, so they engaged in trade for “timber, stone, tin, iron, obsidian, etc.” (p. 111).

While Demirdjian’s (2005) review suggests that the development of a sedentary lifestyle might be the inception of general marketing practices, this research aims to describe some common marketing practices in Ancient Egypt. Based upon an examination of archeological evidence and the extant literature, elements of logistics present themselves as the essential tools that enabled the Ancient Egyptian kingdom to function and survive. Specifically, this paper will describe some of the common marketing practices utilized in Ancient Egypt. Although the common practices described are not exhaustive, and differences in society and markets existed between Ancient Egypt and today, looking
at the practices employed in Ancient Egypt can still shed useful light on the relatively static nature and development of some aspects of logistics. Some questions this research hopes to begin to answer include: Within the Ancient Egyptian society, what marketing processes were utilized? What role did logistics play in Ancient Egypt?

Against the background of Ancient Egypt, this research will also examine the evolution of ‘modern business logistics,’ or business logistics practices since 1900. This comparison will emphasize the historical roots of some marketing practices in Ancient Egypt, and attempt to trace those practices to modern logistics activities. Although contemporary definitions of logistics will be reviewed, a more general definition of logistics will be utilized to guide the historical examination of Ancient Egypt. For the ancient history context, logistics is defined as “the flow of materials from origin to destination” to meet the needs and desires of the Ancient Egyptians (Rider, 1970). To better understand the critical role logistics played in Ancient Egypt, this paper will begin with a brief description of life in Ancient Egypt, including some general marketing practices and information. In the next section, some of the areas of Ancient Egyptian life that depended upon logistics activities will be described, and following that, those areas will be traced to modern business logistics.

Life & Marketing in Ancient Egypt

Life in Ancient Egypt revolved around two primary natural forces- the Nile and death. The Nile, like the Tigris and Euphrates rivers in Mesopotamia (Demirdjian, 2005), provided the sustenance Egyptians needed to survive (Hatem, 1976). As Hatem describes, “environment is one of the foremost factors in the development of any civilization, but equally important is man’s response to the conditions imposed by his environment” (1976, p. 21). The yearly flooding cycle of the Nile provided water and fertile farming land for farmers to cultivate, and over time Egyptians began “to tame the Nile” (p. 22).

Brier and Hobbs (1999) describe how the Nile-centric life in Ancient Egypt was structured. Years were measured by the cycle of the river, beginning in September with the ‘Inundation’ season, when the Nile would overflow its banks. During this time, farmers would focus on repairing and preparing equipment. January marked ‘Emergence,’ which was when the Nile receded and crops were planted. The ‘Harvest’ season began in May, when crops would be gathered from sun-up to sundown.

The second fundamental force in Ancient Egyptian society was death. On account of their religious beliefs, Ancient Egyptians believed preparing for life after death was essential (McDowell, 1999). McDowell suggests that many of the goods manufactured and traded were tomb furnishings. Many Egyptians spent much of their free time in decorating and furnishing their tomb. The most obvious examples of this preparation for life after death come from the Pharaohs (Gutgesell, 2007). The burial sites of many Pharaohs have been discovered and examined, but even common citizens would have prepared a burial state, albeit less elaborately decorated and furnished (McDowell, 1999). The price of furnishing the common worker’s burial site would have been approximately 30 months pay (Gutgesell, 2007).

These two main forces in Ancient Egypt- the Nile and death- encouraged the development of a business environment in Egypt, which included marketing and logistics. Egyptians developed business practices to aid citizens in providing for a better burial, marriage or home (Kemp, 1989). Traders, craftsmen and businessmen were not highly regarded in Egyptian society, but not as lowly regarded as miners (Brier and Hobbs, 1999). The efficiency of the Ancient Egypt government supported business and enabled the Egyptians to expand trade significantly (Strauss-Seeber, 2007).

Before looking specifically at logistics, some of the general marketing practices used in business in Ancient Egypt will be reviewed, to shed light on the business climate logistics occurred within. One common marketing practice that existed in some form in Ancient Egypt was branding. While less complex than modern branding, Ancient Egyptians branded livestock for identification purposes (Strauss-Seeber, 2007). By 3150 B.C., the hieroglyphic script came into use for “label[ing] commodities” (Hawass, 2005, p. 19). Advertising, too, may have first appeared in Ancient Egypt. Dated around the 29th Century B.C., Pharaoh Cheops issued an advertisement for a missing slave (Pharaoh Cheops).

In addition, McDowell believes that Ancient Egypt may have even had a marketplace on the banks of the Nile (1999). Brier and Hobbs also suggest a central market existed in Ancient Egypt to trade goods (1999). Further, since Egypt relied on the barter system, middlemen were necessary to conduct business exchanges (Brier and Hobbs, 1999). A typical barter transaction required at least two parties, who each have something to trade the other party wants. However, when the two parties were not
satisfied with the others’ offering, middlemen were utilized as an intermediary to improve barter transactions (Brier and Hobbs, 1999). Middlemen were also often called upon for their expertise in barter transactions - a typical example was the purchase of a donkey (McDowell, 1999).

Logistics in Ancient Egypt
Although the business climate in Egypt was simpler than today’s, tradesmen, craftsmen and marketplace sellers all required supplies to support their craft, and transportation to move their goods. Therefore, even though the term ‘logistics’ developed well after the Ancient Egyptian Kingdoms, the concepts of logistics enabled the Egyptians to survive in their environment and support the developing business climate. Kemp (1989) points out that although “no one thought ‘economics’ or pursued it as an independent goal … should we conclude that the Egyptians were economically naïve” (p. 232)? The same could be said of logistics - although the concept had not been named, the archeological and cultural evidence suggests that Ancient Egyptians were not naïve concerning logistics. In fact, efficient and reliable logistics was likely the key to Ancient Egypt’s culture and trade (Hawass, 2005).

Looking into more detail at the areas of Egyptian life that logistics impacted, the Nile became the main transportation avenue in Ancient Egypt. The archeological evidence suggests that logistics enabled the state to import necessary raw materials from other countries, erect an impressive army, and supply the necessities of life to all Egyptian citizens. The three areas outlined below were identified through review of literature, they should not be considered mutually exclusive, or completely exhaustive. The four main areas of Ancient Egyptian life supported by logistics activities offer insight into some uses of logistics, but future research could identify further uses of logistics in Ancient Egypt.

Transportation
As Ancient Egypt grew, ‘taming the Nile’ became necessary for its citizens survival (Hatem, 1976). Through the construction of canals, Ancient Egyptians were able to develop irrigation to protect their crops against droughts, and build a central trade route in Egypt (Strauss-Seeber, 2007). By the New Kingdom, the Ancient Egyptians had built sea-worthy vessels, which could transport raw materials or the army (Hawass, 2005). Alternative means of transportation were typically on foot or by camel (Kemp, 1989). Thus, the Nile provided an efficient pathway to move resources throughout the kingdom, and is the first piece of evidence suggesting logistics was an integral activity in Ancient Egypt.

Raw Materials
Archeologists have discovered the remains of an Ancient Egyptian beer bottling and preservation site, leading them to conclude that by approximately 3600 B.C., Ancient Egyptians “already [had] some kind of economic organization that could stock and distribute raw materials” (De Luca and Amenta, 2007, p. 28). While Ancient Egyptians practiced agriculture with the aid of the Nile, Egypt still lacked many necessary raw materials, particularly wood (Strauss-Seeber, 2007). Wood was necessary for homes, religious rites, boats, military supplies and funerary decorations (Strauss-Seeber, 2007). Ancient Egypt possessed “little useable wood,” so they imported cedar and ebony (Hawass, 2005, p. 61). Indeed, Ancient Egyptians were always in search of sources of wood (De Luca and Amenta, 2007). Figure 1 depicts where Ancient Egyptians imports of raw materials originated.

Since Ancient Egypt imported many raw materials (Hawass, 2005), Egypt was particularly sensitive to trade disruptions and political issues that disrupted supply (De Luca and Amenta, 2007). To protect Egypt and its suppliers, the Pharaoh developed “royal monopolies … on those raw materials, which lay outside the Nile floodplain” (Kemp, 1989, p. 246). Thus, the Ancient Egyptian government regulated international trade in the region, utilizing trade as a political weapon of favor or disapproval (Brier and Hobbs, 1999). Ancient Egyptians were successful in protecting their supply of raw materials, which combined with the protection of the Egyptian desert allowed them to import “luxury goods, such as coniferous woods, …ivory, and exotic animals” they lacked (Hawass, 2005, p. 19).

Essentials of Life
Although structured differently, “work and play in Egypt’s ancient culture closely resembled that of modern societies- at least until the nineteenth century” (Brier and Hobbs, 1999, p. 75). Ancient Egypt had a “strictly organized” economy, with state distribution of the essentials of life and fixed wages to provide for additional needs (Gutgesell, 2007, p. 371). As McDowell (1999) describes, “the various
branches of the State, including the Granary, the Treasury, and the Temples, supplied workmen with all the necessities of life, so that in theory they [workmen] were independent of the market” (p. 62). For each working citizen this meant, the state provided food, fuel, clothing, fish, firewood, water, laundry services, water-carriers and maidservants. Vegetables, oils and meats were also provided less frequently. Providing so many resources for all workers was certainly a formidable task suggesting the need for sizable logistics systems.

There are ancient records of logistics failures, too, which led to Ancient Egypt’s first recorded strike in 1150 B.C. This strike occurred in Deir el-Medineh, after the state deferred workers’ wages for months. Workers went hungry and could not meet their financial obligations. These workers ended up having to strike twice and occupy a temple to receive their wages from the state. (Gutgesell, 2007)

One way Ancient Egyptians utilized logistics to meet the needs of workmen was to store grain (Strauss-Seeber, 2007). The Granary housed grain for the whole year, and often for longer periods of time (Strauss-Seeber, 2007). In Genesis 41:33-36, the Bible describes how planning ahead enabled Egypt to weather a seven year drought.

33 Now therefore let Pharaoh select a man who is discerning and wise, and set him over the Land of Egypt. 34 Let Pharaoh proceed to appoint overseers over the land, and take one-fifth of the produce of the Land of Egypt during the seven plenteous years. 35 Let them gather all of the food of these good years that are coming, and lay up grain under the authority of Pharaoh for food in the cities, and let them keep it. 36 That food shall be a reserve for the land against the seven years of famine that are to befall the Land of Egypt, so that the land may not perish through famine.

McDowell (1999) describes another way logistics was utilized in Ancient Egypt- the delivery of water. Providing water to workers in Deir el-Medina (near the Valley of the Kings) was essential because the region contained no water. In Deir el-Medina, each family had a pot located in a central part of the village that was filled with water for their household use. Having all the pots centrally located made water delivery more efficient, and households would then carry the water to the house as it was needed. One of the hardest regions to supply water to, was the Valley of the Kings, where many workers were employed on the tombs of the Pharaohs, requiring water to either be carried in on-foot or by camel.

Despite the provisions of the state, there were still unmet needs, so workers traded through barter to meet their needs (McDowell, 1999). Grain, copper or silver was utilized as a benchmark to ensure a fair trade (but not as a monetary system), and often trades occurred in multiple stages to meet the needs of the buyer and seller (McDowell, 1999). Those who were traders or craftsmen looked to improve their skills to maximize sales (Kemp, 1989). Thus, as both the government and citizens began to crave new things, Ancient Egyptian entered “conscious consumption” during the Predynastic Period (5500-3100 BC) (Kemp, 1989, p. 238). The Egyptian state desired “new temples, new fleets of ships, [and] the re-equipping of the army for fresh campaigns, … [which] could create sudden demands both for the redirection of existing resources and for additional revenue” (Kemp, 1989, p. 240).
Figure 1. The point-of-origin of Ancient Egyptian’s raw materials (Hawass, 2005).
One final piece of evidence, highlighting that Ancient Egyptians likely utilized logistics, comes from war. As Brier and Hobbs describe, war was a desirable state for Egypt, as it “increased a pharaoh’s prestige” (1999, p. 201). War emphasized the importance of Egypt in the surrounding area and stimulated the economy by capturing sources of needed resources. Egypt’s army was likely raised by Narmer, the Pharaoh of Egypt between 3100 – 3050 BC, but by the Middle Kingdom (2055-1650 BC), Ancient Egypt had a professional army. The Egyptian army was highly skilled and diverse by the 18th Dynasty (1550-1291 BC), containing “a commander in chief, generals, divisions, corps and so on beneath the commander in chief, the pharaoh” (p. 212). When Rameses II (1279 BC- 1213 BC) attacked Syria, he led 20,000 soldiers plus chariots into battle (Brier and Hobbs, 1999) and developed the army into “a fundamental tool of central power” (De Luca and Amenta, 2007, p. 136). Supporting the army during its campaigns would have been no less of a complex operation then providing for the needs of workmen.

In summary, archeological evidence suggests that Ancient Egyptians were skilled in efficient and large-scale logistics. Evidence of the role of logistics in Egyptian society is found in the use of the Nile for transportation, the sourcing of raw materials from foreign nations, the daily provisions for each workman and the maintenance of the army. Although the term ‘logistics’ had not been coined, aspects of logistics likely date back to at least 3600 B.C., if not earlier. Based upon the evidence of logistics found in Ancient Egypt, the paper will now explore how the four main dimensions of logistics in Ancient Egypt have evolved in modern business logistics. Table I highlights the parallels between Ancient Egyptian logistics and modern business logistics.

<table>
<thead>
<tr>
<th>Ancient Egyptian dimension:</th>
<th>Modern business logistics dimension:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation</td>
<td>In-bound &amp; Out-bound logistics</td>
</tr>
<tr>
<td>Raw Materials</td>
<td>Procurement</td>
</tr>
<tr>
<td>Essentials of Life</td>
<td>Distribution &amp; Warehousing</td>
</tr>
<tr>
<td>War</td>
<td>Military Logistics</td>
</tr>
</tbody>
</table>

Modern Business Logistics

While the concept of modern logistics has mainly appeared since 1900 (Kent and Flint, 1997), logistics certainly existed before it was defined and entered business discourse (De Luca and Amenta, 2007, p.28). Although archeological evidence suggests logistics has likely been a crucial component of war and human survival since the time of Ancient Egypt (e.g., Brier and Hobbs, 1999; McDowell, 1999; Hawass, 2005), logistics did not enter academic conversations until around the turn of the twentieth century (Stock and Lambert, 1987). Logistics first appeared in Crowell’s (1901) Report on Industrial Commission on the Distribution of Farm Products, in which Crowell discussed logistics in the context of farm products. After studying the importance of logistics in Ancient Egypt, it is not surprising that the first appearance of logistics in the business domain is in relation to an essential aspect of life-distributing food.

Prior to revisiting the four main dimensions of logistics found in Ancient Egypt in the context of modern business logistics, the paper will next briefly describe of the growth of the market environment and logistics since 1900. Understanding the general business environment provides the setting in which logistics has matured, and inevitably, forces in the general business environment have also impacted logistics. The following discussion describes the maturation of logistics, and presents some suggestions for future research in logistics.

General Marketing Environment

Although aspects of marketing likely date back to ancient times, and the role of the government and market differed in ancient times, some aspects of marketing translate into modern marketing. The discipline of marketing did not emerge out of economics until the turn of the century (Jones and Monieson, 1990). Between 1900 and 1910, marketing was conceptualized, named and began to differentiate itself from economics (Bartels, 1976b). By the 1920’s, many marketing concepts emerged
Logistics officially entered the business domain in 1927, although logistics processes were employed before 1927 (Borsodi, 1927). As Kent & Flint discuss, early logistics processes between the 1910’s and 1930’s focused predominantly on the transportation of the essentials of life and reflected a strong influence of economics. Logistics during the 1940’s and 1950’s initially focused on the military’s needs of World War II, followed by a growing functional emphasis on business activities. The functional perspective, which focused on a separate examination of the components of marketing or a firm’s operations, remained the dominant school of thought during this time. (Kent & Flint, 1997)

In the late 1950’s, J.B. McKitterick proposed the marketing concept, which called for marketing to be more consumer-centric (Powers and Martin, 1987). On account of the marketing concept and a growing focus on cost, the systems approach grew in importance for thought and business by the 1960’s (Kent and Flint, 1997). The systems approach focuses on integration and recognizes parts of a system may have conflicting goals (Novack et al., 1992). The importance of minimizing the costs of logistics dates back to the Ancient Egyptians, and logistics during the 1960’s refocused on lowering costs through the integration of all logistics functions, reflecting a growing systems influence (Kent and Flint, 1997).

During the 1970’s and 1980’s, the importance of the marketing concept continued to grow for businesses (Kent and Flint, 1997). Prior to the 1970’s, logistics providers faced heavy regulation, but in the 1980’s changes in technology and regulations altered the competitive environment (Stock and Lambert, 1987). Firms began reintegrating logistics into the business structure, and recognizing the cost savings logistics could offer in an increasingly competitive environment (Harris and Stock, 1985). As Stock and Lambert (1987) delineate, the Airline Deregulation Acts passed in 1977 and 1978, followed by the Motor Carrier Act in 1980, the Staggers Rail Act in 1980 and the Shipping Act in 1984. These deregulation acts heightened competition by removing pricing, scheduling and routing restrictions for transportation carriers. Carriers essentially needed to adopt a marketing orientation as they began to feel a “profit squeeze” and sought to reduce costs (p. 26).

As Stock and Lambert (1987) discuss, computers also became an important tool for businesses during this time. Computers “provided the capability of truly integrating logistics activities … [by improving] logistics efficiency and productivity” (p. 25). Advanced tools utilized computer technology and connected many parts of a firm, emphasizing the need to further integrate logistics with other units. By 1986, logistics became an important strategy tool for firms and top executives began integrating it more in their organization (Bartels, 1976b). As a strategy, practitioners realized the importance of studying logistics in conjunction with the environment, its relation to other aspects of a firm and its complexity (McGinnis, 1992).

From this brief description the development of logistics and marketing is closely intertwined. Next, the paper will revisit the four dimensions of Ancient Egypt logistics in terms of modern business logistics. For this discussion, the transportation and raw materials dimensions will be discussed jointly, as procurement and in-bound logistics are related.

Transportation & Raw Materials

Transportation in Ancient Egypt largely centered on moving raw materials and goods with the aid of the Nile (Strauss-Seeber, 2007) or camels (Kemp, 1989). While the modern dimension of transportation has retained the focus on moving raw materials and goods, transportation has matured significantly since Ancient Egypt. Transportation in modern business logistics can occur via four pathways- “highway, rail, air and water carriers” (Blanchard, 2010, p. 79). Often multiple methods are employed to move materials, and typically 70% of all shipments travel by highway at some point (Blanchard, 2010). While Figure 1 demonstrates that even the Ancient Egyptians relied upon international logistics, modern business logistics has expanded to include global logistics.

Even though the Ancient Egyptians traded goods through barter (instead of buying with money), logistics was still a relevant marketing activity they relied upon (McDowell, 1999). Transportation of raw materials provided craftsmen with the inputs to their offerings, and transportation was essential in carrying goods to market. The transportation dimension of logistics emphasized in Ancient Egypt also occurred when logistics entered the business domain. Recall that by the 1920’s, many opinions had emerged regarding the identity of marketing (Witkowski, 2010), and transportation, or the physical
distribution of goods, was considered to be the core essence of marketing. Even as the marketing concept matured, logistics remained a central tenet until the 1950’s (Harris and Stock, 1985). Therefore, even some of the earliest definitions of modern business logistics placed heavy emphasis on the importance of transportation in marketing. This emphasis is apparent in Table II. Of the four dimensions of logistics in Ancient Egypt, the transportation dimension remains the most visible aspect of logistics, with 14 definitions mentioning either transportation or the flow of materials (implying transportation). By comparison, the second most recognized dimension of Ancient Egypt logistics is the essentials of life dimension, which only appears in 7 definitions.

Table II: Aspects of Ancient Egyptian logistics in modern business logistics definitions.

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Author &amp; Date</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation &amp; Raw Materials</td>
<td>Borsodi-1927</td>
<td>“There are two uses of the word distribution which must be clearly differentiated ... first, the use of the word to describe physical distribution such as transportation and storage; second, the use of the word distribution to describe what is better termed marketing”</td>
</tr>
<tr>
<td></td>
<td>aNCPDM-1967</td>
<td>“A term employed in manufacturing and commerce to describe the broad range of activities concerned with efficient movement of finished products from the end of the production line to the consumer, and in some cases includes the movement of raw materials from the source of supply to the beginning of the production line”</td>
</tr>
<tr>
<td></td>
<td>Rider-1970</td>
<td>“a total flow of materials from origin to destination, the systems carrying it, and consideration given to achieving the purpose for which they were organized”</td>
</tr>
<tr>
<td></td>
<td>aNCPDM-1976</td>
<td>“The integration of two or more activities for the purpose of planning, implementing and controlling the efficient flow of raw materials, in-process inventory and finished goods from point-of-origin to point-of-consumption”</td>
</tr>
<tr>
<td></td>
<td>Carpenter &amp; Collins-1983</td>
<td>“provides power by making supplies, equipment, and personnel available to execute the plans conceived in strategic planning”</td>
</tr>
<tr>
<td></td>
<td>bCLM-1986</td>
<td>“the process of planning, implementing and controlling the efficient, cost-effective flow and storage of raw materials, in-process inventory, finished goods, and related information flow from the point of origin to the point of consumption for the purpose of conforming to customer requirements”</td>
</tr>
<tr>
<td></td>
<td>Stock &amp; Lambert-1987</td>
<td>“the management of the flow of goods from point-of-origin to point-of-consumption”</td>
</tr>
<tr>
<td></td>
<td>Little-1991</td>
<td>“the process of anticipating customer needs and wants; acquiring the capital, materials, people, technologies, and information necessary to meet those needs and wants; optimizing the goods- or services- producing network to fulfill customer requests in a timely way”</td>
</tr>
<tr>
<td></td>
<td>Closs &amp; Thompson-1992</td>
<td>“the satisfactory delivery of products and services to customers when they want it, where they want it and how they want it”</td>
</tr>
<tr>
<td></td>
<td>Novack et al.-1992</td>
<td>“the creation of time, place, quantity, form and possession utilities within and among firms and individuals through strategic management, infrastructure management, and resource management with the goal of creating products and services that satisfy the customer through the attainment of value”</td>
</tr>
<tr>
<td></td>
<td>Christopher-1998</td>
<td>“the process of strategically managing the procurement, movement and storage of materials, parts and finished inventory and related information flow through the organization and its marketing channels”</td>
</tr>
<tr>
<td></td>
<td>bCLM-2001</td>
<td>“that part of the supply chain process that plans, implements and controls the efficient, effective flow and storage of goods, services, and related information from the point of origin to the point of consumption in order to meet customer requirements”</td>
</tr>
</tbody>
</table>
|                                  | bCLM-2003     | “that part of supply chain management that plans, implements and controls the efficient, effective forward and reverse flow and storage of goods,” }
Looking in more detail at some of the definitions presented in Table II, Ralph Borsodi was among the first writers to actively distinguish transportation from marketing (1927). Borsodi’s definition of logistics emphasized that both transportation and marketing are important components to the concept...
of logistics (1927). Borsodi’s definition had a significant impact on the nature of transportation though, as it also suggested marketing contained other functions beyond logistics. Although presenting a definition of marketing, not logistics, Converse’s (1921) *Marketing Methods & Policies*, included a heavy focus on transportation. Converse defined marketing as “the transportation of the goods from the point of production to the consumers or the transportation and all the transactions involved in getting the goods from the producers to the consumers.” The National Council of Physical Distribution Management (NCPDM), later the Council of Logistics Management (CLM) and the Council of Supply Chain Management Professionals (CSCMP), also contributes five definitions of logistics focused on the transportation aspect of logistics.

**Table II** demonstrates the continued importance of transportation. Although Borsodi was the first to define logistics in business writings, the importance of the transportation dimension of logistics remained strong prior to 1927. Regardless of when logistics was defined, transportation continued to mature in importance, as markets continued to become more externally integrated (The Logistics Handbook, 1994). However, in the 1950’s and 1960’s the development of logistics was impeded by the growing influence of the marketing concept. Borsodi (1927) was among the first writers in logistics to distinguish marketing from transportation, and gradually other writers, academics and even practitioners began to adopt a similar perspective, causing transportation to decline in importance as a function of marketing (Harris and Stock, 1985).

By the 1960’s, the marketing concept was well developed, and many academics and practitioners failed to consider transportation and storage as marketing functions (Bartels, 1976a). Firms faced increasing cost pressures during this time, causing them to apply “operations research techniques, automation and electronic data processing in an effort to reduce costs (Bartels, 1976a, p. 23). However, the lack of recognition of logistics prevented firms from realizing significant cost savings on the expenses incurred between firms and distributors (Bartels, 1976a).

Recognizing that firms tended to overlook the potential cost savings offered by logistics, prominent practitioners began calling for a renewed focus on transportation and physical distribution in the 50’s and 60’s (Stock and Lambert, 1987). One notable call came from Peter Drucker in his 1962 article, *The Economy’s Dark Continent* (Stock and Lambert, 1987). Drucker’s article emphasized that logistics contributes value by getting the product to the consumer, not by creating the product (1962). Drucker recognized firms tended to ignore logistics costs and lacked personnel who understood both logistics and the business context. Drucker concludes with a call “for a new orientation- one that gives distribution the importance in business design, business planning and business policy its costs warrant” (1962, p.270).

Around 1960, the transportation dimension of logistics also began to mature in another way- it was increasingly broadening “to include the total material flow” (Stock, 1990, p. 3). In order to support a broader focus on the transportation of goods, new types of logistics developed. For example, maturation of transportation led to the development of inbound and outbound logistics. Although transportation in Ancient Egypt did not differentiate between moving raw materials to craftsmen or transporting finished goods to the market, the Ancient Egyptians did practice in-bound and out-bound logistics of sorts. So, even though logistics “migrated [back] to the business sector” (Russell, 2000) following World War II, and evolved into inbound and outbound logistics (The Logistics Handbook, 1994), the Ancient Egyptians likely also practiced a simplistic form of inbound and outbound logistics.

In modern business logistics, inbound logistics (also called materials management) focuses on the management of flow into an organization (The Logistics Handbook, 1994), while outbound logistics (termed physical distribution) manages the flow out of the organization (The Logistics Handbook, 1994). Inbound logistics largely parallels the raw materials dimension of logistics found in Ancient Egypt. The raw material dimension of Ancient Egyptian logistics has matured into modern procurement (often synonymous with purchasing or sourcing), which describes the attainment of any inputs to the production process (Blanchard, 2010). Many firms still obtain raw materials through logistics, but procurement processes have grown to also include intermediate goods and finished products (Blanchard, 2010).

Although the Ancient Egyptians did not study logistics as they might have studied writing or a particular craft, logistics has matured into an academic topic in modern business logistics. Despite the temporal distance between Ancient Egypt and modern business logistics, the early importance Ancient Egyptians placed on transportation remained influential as logistics entered education (McGinnis, 1992). For instance, the first logistics textbook was Smykay et al.’s (1961) *Physical Distribution Management*. Also, the transportation dimension of logistics became the inspiration for a fraternity.
The Delta Nu Alpha Transportation Fraternity formed in 1945, highlighting the growing importance of transportation in education (Stock and Lambert, 1987). Further, as logistics in the educational arena continued to grow and mature, in the 1970’s specialty journals began appearing in logistics, again with a particular emphasis on transportation. In 1970, the *International Journal of Physical Distribution and Materials Management* was founded, followed by the *Journal of Business Logistics* in 1978 (Harris and Stock, 1985).

Ancient Egyptians did not receive any formal education in logistics beyond the requirements of their job, but they certainly recognized the importance of integrating logistics within the state. The Ancient Egyptian State was responsible for storing grain to feed citizens (Genesis 41:33-36) and transporting water (McDowell 1999), which required collaboration of workers with the State, as well as with common citizens. Although not organized by any country, a group focused on logistics collaboration formed in 1963 (Stock and Lambert, 1987). The NCPDM, the forerunner of CLM and CSCMP, brought together practitioners and academics to encourage a closer collaboration on logistics research (Stock and Lambert, 1987). In 1985, the NCPDM was renamed the CLM, and CSCMP in 2005 (Strauss-Wieder, 2010).

Mirroring logistics in Ancient Egyptian, one final indication of the maturation of logistics was the external integration of logistics to improve efficiency (The Logistics Handbook, 1994). Ancient Egyptians practiced external integration by conquering neighboring nations to maintain access to supplies of raw materials (Kemp, 1989). Regardless of the time, successful external integration of logistics requires a keen awareness of dynamic environments (McGinnis, 1992), an understanding of costs and risks, as well as knowing how to leverage resources (The Logistics Handbook, 1994). Such skills were just as essential in ancient times as they are to modern business logistics. The pharaohs of Ancient Egypt used trade as a political weapon (Brier and Hobbs, 1999), which enabled them to protect their external sources of supply (Hawass, 2005). In modern business logistics, the growing importance of external integration has led to an increased focus on supply chain management (SCM) (Strauss-Wieder, 2010) and external integration on a global scale (Schoenherr, 2009).

**Essentials of Life**

In Ancient Egypt, the State provided citizens with the necessities of life as their wage (Gutgesell, 2007). Since individuals in ancient times relied upon the government for their survival, large-scale logistics operations were necessary to store, and efficiently transport essentials to workers where they were employed (Gutgesell, 2007). Although modern logistics processes are no longer under the sole purview of the government, logistics practitioners still provide citizens with access to the essentials of life. Modern logistics distributes bread, bottled water, clothing etc. to retail stores where consumers can purchase them.

In addition to the essentials of life, logistics also supplies many additional products to meet the needs and wants of consumers (Converse, 1936). The growth of logistics beyond providing the essentials of life to the wants and desires of citizens is evidenced in the definitions presented in Table II. Heskett et al.’s (1964) definition mentions “the translation of consumers’ demand for time and place utilities,” emphasizing the growing importance of consumer input to logistics functions. The NCPDM/CLM included a focus on consumer wants and needs as early as 1976, and offers four definitions incorporating the consumer. Little’s (1991) definition explicitly mentions “customer needs and wants.”

The ancient dimension of logistics of providing for the needs of citizens has matured into distribution in modern business logistics. Distribution, or making a product available to consumers, typically operates via warehouses and inventory management today (Blanchard, 2010). Thus, one aspect of distribution- the warehouse- likely dates back to at least the time of the Ancient Egyptians, who essentially stored grain in a warehouse so the grain could be distributed to the people as it was needed (Strauss-Seeber, 2007).

For thousands of years, logistics has sustained life by providing access to the essentials of life, so it is no surprise that one of the earliest writers on business logistics wrote about the distribution of farm products. Around the turn of the century, Crowell (1901) wrote on the economic factors of distribution of agricultural goods in his *Report on the Industrial Commission on the Distribution of Farm Products*. Crowell’s report appeared during marketing’s infancy (Jones and Monieson, 1990), and at a time when logistics was only recognized by the military (Baker 1905). Therefore, the report sought to economize distribution, as lower costs were and remain an important issue to practitioners. Subsequently, other influential writers also focused on the economics of distribution, including Louis...
Dwight Harvell Weld (Stock and Lambert, 1987). Weld’s *The Marketing of Farm Products* appeared in 1916, and described utilizing distribution channels to create value.

Attempts to minimize the costs of logistics were evidenced in Ancient Egypt by storehouses, such as the Granary (Genesis 41:33-36) and the central location of water pots in Deir el-Medina (McDowell, 1999). Thus, it seems the Ancient Egyptians recognized the importance of increasing the efficiency of distribution, however, businesses and academics began to overlook this perspective by the 1950’s (Brown, 1955). Prior to the 1950’s, distribution and storage efficiencies were largely ignored (Brown, 1955). Technological advances and poor economic conditions led businesses to reconsider the idea of economizing distribution in the 1950’s to 1960’s (Bowersox, 1969).

One indication of the resurgence in the importance of distribution was the appearance of the “physical distribution concept” (PDC) in the 1950’s (Harris and Stock, 1985, p. 54). The PDC emphasized the importance of integrating distribution activities throughout an organization; however, the PDC did not become the dominant concept in marketing due to the success of the marketing concept (Harris and Stock, 1985). In addition, *The Role of Air Freight in Physical Distribution* appeared during this time, featuring an economic study of distributing via air freight, which sought to help practitioners grasp how to affordably adopt air freight and rethink distribution costs (Stock and Lambert, 1987). Other influential pieces emphasizing the economy of distribution included Michael Schiff’s (1972) *Accounting and Control in Physical Distribution Management*, which discussed the connection between accounting and managing logistics (Stock and Lambert, 1987). Further, Douglas Lambert’s (1975) *The Development of an Inventory of Costing Methodology: A Study of the Costs associated with Holding Inventory* discussed how to improve inventory management (Stock and Lambert, 1987).

The importance of distribution has not waned since the Granary in Ancient Egypt. During World War II, production factories no longer focused on limiting production to what could be sold (Myers and Smalley, 1959). After the War ended, factories did not desire to return to their pre-war schedules, but instead began focusing on meeting individual consumer demands (Tamilia 2007), so warehouses and distribution facilities have grown to meet changes in supply and demand (Mentzer et al., 1989). With the rise of customer-centric business in the 1950’s, logistics became a strategic way to better execute the marketing concept (Stock and Lambert, 1987). Warehouses enable firms to better meet the demands of the consumer by minimizing stock-outs, cycle times and prices (Stewart, 1965).

War

The Ancient Egyptian army actively protected the State and trade routes, which required substantial logistics, as the troops still required food and supplies while on the march or in combat (De Luca and Amenta, 2007). Similar to the other Ancient Egyptian dimensions of logistics, the critical role of logistics in supporting the military also played a role in introducing logistics into the modern business environment (McGinnis, 1992). While logistics has likely been important to all military campaigns since the time of Ancient Egypt (Eccles, 1959), modern military logistics heavily emphasizes the “interdependence of strategy, tactics, and logistics” (McGinnis, 1992). Pettit captures the necessity of military logistics with a quote from Tom Peters- “leaders win through logistics. Vision, sure. Strategy, yes. But when you go to war, you need to have both toilet paper and bullets at the right place at the right time” (2012, p.97).

According to Russell, the term logistics can be traced back to Europe in the 18th century (2000). European logistics practices eventually migrated to the United States, making the U.S. military the first organization to practice logistics in the U.S. (McGinnis, 1992). The U.S. military has managed logistics since its formation and international logistics since the 1800’s (McGinnis, 1992). The logistics term became a part of the American military in the late 19th century when Rear Admiral Alfred T. Mahan used it in naval strategy (Russell, 2000).

Returning again to the definitions related to the dimensions of logistics presented in Table II, de Jomini’s definition provides an early definition of logistics. Considering logistics had not become a business topic yet, this definition focuses on logistics in the context of the military. Logistics in the military originally focused solely on moving armies, mirroring how the Ancient Egyptians likely employed logistics to support their troops. Over time, the military recognized logistics also included supplying the army (around the turn of the century) (Baker, 1905). However, World War II also had a significant impact on marketing and logistics development. During the War, logistics was essential to sustain troops overseas and provide the necessary armaments, which enabled the military to be successful (Carpenter and Collins, 1983). The War, in conjunction with the growing importance of the
marketing concept and system’s perspective in marketing, led to a broader definition of logistics. In 1959, Lennon’s definition recognized the multifaceted nature of logistics in supporting the effectiveness of the troops.

Closing Remarks
Understanding the past can provide invaluable insights into contemporary and future problems. This exploration of logistics practices in Ancient Egypt highlights the importance of understanding history, and suggests that many dimensions of contemporary business logistics have maintained a level of importance throughout history. Certainly the dimensions of logistics discussed (transportation, raw materials, etc.) have grown in sophistication, but the core goals and processes of these functions has remained very much the same as their ancient roots. These findings suggest that investigating the role logistics played in other historical periods could further enrich our current understanding of logistics. Even investigating past logistics failures can provide valuable insights into logistic practices, so firms and agencies can avoid making similar mistakes in the future (e.g., Napoleon’s unsuccessful Russian Campaign) (Riehn, 1991).

Even before the 1st Century AD, the Ancient Egyptians recognized the importance of international and external logistics. For instance, the Ancient Egyptian State found holding monopolies on raw materials needed in Egypt more economical than trade (Kemp, 1989), and in some kingdoms actively protected sources of raw materials with the military (Brier and Hobbs, 1999). The importance of international logistics and the external integration of logistics continue to grow in modern business logistics, and will remain an important focus for businesses and researchers in the future. As international logistics grows into global logistics, logistics will only continue to grow as “a boundary-spanning, global, strategically relevant discipline” (Von der Gracht, 2008, p. 2). As global logistics processes continue to grow, the core goals and dimensions of logistics will endure, however, understanding environmental differences will be critical (Klaus, 2009). For example, global logistics occurring in both developed and developing countries will necessitate identification of differences (e.g., infrastructure, government regulation, etc.) between the nations that could impact logistics processes (Klaus, 2009).

Based upon the discussion of logistics in Ancient Egypt and the definitions presented in Table II, the growing trends in integration and global logistics suggest that logistics will continue to become more multi-disciplinary, and require a “deeper understanding of behavioral issues, specifically, customer perceptions of a firm’s logistics systems and their related behaviors” (Kent and Flint, 1997, p. 25). To better understand the inter-functional and cross-discipline aspects of logistics, research understanding how consumers behave will be essential (Kent and Flint, 1997). Looking at historical consumer behavior, from Ancient Egypt or other ancient civilizations, would be an excellent supplement to traditional consumer behavior studies by providing a better understanding of the core goals of logistics, which may tend to be static over time. Although ancient cultures relied on simpler logistics systems, comparing those ancient systems to modern ones helps highlight the essential properties that define logistics.

In addition to consumer-behavior based and historical research, testing theories from other domains of business could prove a fruitful way for researchers and practitioners to learn about logistics (Stock 1996). “Nevertheless, the supplying of society with economic goods requires coordination of physical and exchange functions, and the need is greater than ever for the integration, rather than separation, of thought and effort in this achievement” (Bartels, 1976a). Eventually, these various research methods may yield a unified theory of logistics, which could be adopted by businesses to improve logistics processes. A unified theory of logistics would describe, “the boundary-spanning, demand and supply coordinating capabilities [a] firm needs to create customer value and satisfy customers” (Mentzer et al., 2004). Although the conceptual integration of various aspects of logistics into a general theory would be fruitful for practitioners (Bartels, 1976a), there has been relatively “little effort” exerted on developing such a theory, which makes logistics theory a fruitful area for future research (Mentzer et al., 2004).

References
From Ancient to Modern Logistics: Evidence in Ancient Egypt & the Early Development of Marketing


Hatem, M.A. (1976), *Life in Ancient Egypt*, Gateway Published, Los Angeles.


Pettit, T.J. (2012), *Is 'Back to Basics' Logistics Where We Need to Go?*, United States Army War College.


