

TPO 51 – 1 Memphis: United Egypt's First Capital 孟菲斯:埃及统一后的第一个首都

The city of Memphis, located on the Nile near the modern city of Cairo, was founded around 3100 B.C. as the **first capital** of a recently **united Egypt**. The choice of Memphis by Egypt's first kings reflects the site's **strategic importance**. First, and most obvious, the **apex** of the Nile River delta was a politically opportune location for the state's administrative center, standing between the united lands of Upper and Lower Egypt and offering ready access to both parts of the country. The older predynastic (pre-3100 B.C.) centers of power, This and Hierakonpolis, were too remote from **the vast expanse of the delta**, which had been incorporated into the unified state. Only a city within easy reach of both the Nile valley to the south and the more spread out, **difficult terrain** to the north could provide the necessary political control that the rulers of early dynastic Egypt (roughly 3000–2600 B.C.) required.

孟斐斯市坐落于尼罗河流域，位于现今的开罗附近，它大约在公元前 3100 年被建成，是近代埃及王国统一后的第一个首都。埃及的第一批君王们选择孟斐斯作为埃及的首都，反映出该地区的**战略重要性**。首先，最明显的一点是，从政治方面考虑，尼罗河三角洲的顶端是国家行政中心的极佳位置，它处于埃及联合王国上半部分和下半部分的中间，可以随时进入这两片区域。旧王朝（公元前 3100 年之前）埃及的两个政权中心，This 城和 Hierakonpolis 城（耶拉孔波利斯），距离广袤的尼罗河三角洲太遥远了，而这片区域已经被并入了统一后的埃及王国中。只有当一个城市既距离尼罗河谷南部地区很近，从那儿又能很容易地到达更远的，**地形复杂**的北部地区时，它才能够为早期埃及王朝的统治者提供政治统治的必要条件。只有一座城市既靠近南部的尼罗河谷，又靠近北部更广阔、**更困难的地形**，才能为早期王朝时期的埃及(约公元前 3000 年到 2600 年)的统治者提供必要的政治控制。

The region of Memphis must have also served as an important node for transport and communications, even before the **unification** of Egypt. The region probably acted as a **conduit** for much, **if not all**, of the **river-based trade** between northern and southern Egypt. Moreover, commodities (such as wine, precious oils, and metals) imported from the Near East by the **royal courts** of predynastic Upper Egypt would have been **channeled** through the Memphis region on their way south. In short, therefore, the site of Memphis offered the rulers of the Early Dynastic Period an ideal location for controlling internal **trade within their realm**, **an essential requirement** for a **state-directed economy** that depended on the movement of goods.

孟斐斯地区也必然是交通运输和通讯的重要枢纽，即使是在埃及统一之前也是如此。**即便不是在所有情况下**，孟斐斯地区也可能在很大程度上是一条连接埃及北部和南部地区**河流贸易**的通道。此外，埃及前王朝时代，上埃及地区的**宫廷**从近东地区进口商品（如酒、油和金属）时，在他们向南行进的过程中会穿越孟斐斯地区。简而言之，因此，孟斐斯的选址能够给早期埃及王朝时代的统治者提供控制国内贸易的理想地理位置，而控制国内贸易，是建立依赖货物流通的**国有经济的必要条件**。

Equally important for the **national administration** was the ability to control communications within Egypt. The Nile provided the easiest and quickest **artery** of communication, and the

批注 [1]: apex
英 ['eɪpeks] 美 ['eɪpeks]
•n. 顶点; 尖端

批注 [2]: expanse
英 [ɪk'spæns] 美 [ɪk'spæns]
•n. 宽阔; 广阔的区域; 苍天; 膨胀扩张

the vast expanse of
广阔的..., 浩瀚的...

The vast expanse of snow
茫茫大雪

批注 [3]: terrain
英 [tə'reɪn] 美 [tə'reɪn]
•n. [地理] 地形, 地势; 领域; 地带

批注 [4]: unification
英 [juːnɪfɪ'keɪʃn] 美 [juːnɪfɪ'keɪʃn]
•n. 统一; 一致; 联合

批注 [5]: conduit
英 ['kɒndʒaɪt] 美 ['kɑːndaɪt]
•n. [电] 导管; 沟渠; 导水管

批注 [6]: channel
英 ['tʃænl] 美 ['tʃænl]
•n. 电视台; 频道; 途径; 方式; 通道; 水渠; 航道; 海峡; 河床; 信道, (电子) 沟道; 输液管
•v. 引导, 开导; 提供资金; **输送**; 开辟水道, 形成凹槽; (人) 通灵; 模仿, 努力赶上

批注 [7]: artery
英 ['ɑːtəri] 美 ['ɑːrtəri]
•n. 动脉; 干道; 主流

national capital was, again, ideally located **in this respect**. Recent geological surveys of the Memphis region have revealed much about its topography in ancient times. It appears that the location of Memphis may have been even more advantageous for controlling trade, transport, and communications **than was previously appreciated**. Surveys and **drill cores** have shown that **the level of the Nile floodplain** has steadily risen over the last five millennia. When the floodplain was much lower, as it would have been in predynastic and early dynastic times, the **outwash fans** (fan-shaped deposits of sediments) of various wadis (stream-beds or channels that carry water only during rainy periods) would have been much more **prominent** features on the east bank. The fan associated with the Wadi Hof extended a significant way into the Nile floodplain, forming a **constriction** in the **vicinity** of Memphis. The valley may have narrowed at this point to a mere three kilometers, making it the ideal place for controlling river traffic.

对**国家管理**来说,同等重要的是掌控埃及国内通讯的能力。尼罗河提供了最便捷和最快速的通讯渠道,而国家的首都,再次,很理想地坐落在尼罗河流域。最近对孟斐斯地区所进行的地质调查揭示了很多关于该地区古代地形的信息。由此看来,孟斐斯的地理位置对控制贸易、运输和通讯来说,可能**比人们之前所认为的还要有利**。地质调查和**钻探**显示,尼罗河泛滥平原的地面高度在过去的五千年中稳步上升。在埃及前王朝时期和埃及王朝早期,泛滥平原的高度要低得多,那时候各个河谷(只在雨季才有水流通过的河床和渠道)的冰水扇(扇形沉积物堆积体)在河的东岸体现得更为明显。Hof 河的冰水扇扩展到了尼罗河的泛滥平原上,在孟斐斯城**附近**造成了挤压。这个山谷在当时变得很窄,宽度仅为 3 公里,这也使它成为了控制河流交通的理想地点。

Furthermore, the Memphis region seems to have been favorably located for the control not only of river-based trade but also of desert trade routes. The two outwash fans in the area **gave access to** the extensive wadi systems of the eastern desert. In predynastic times, the Wadi Digla may have served as a trade route between the Memphis region and the Near East, to **judge from** the unusual concentration of foreign artifacts found in the predynastic settlement of Maadi. Access to, and control of, trade routes between Egypt and the Near East seems to have been a **preoccupation** of Egypt's rulers during the period of state formation. The desire to monopolize foreign trade **may have been** one of the primary factors behind the political unification of Egypt. The foundation of the national capital at the junction of an important trade route with the Nile valley is not likely to **have been** accidental. Moreover, the Wadis Hof and Digla provided the Memphis region with **accessible** desert **pasturage**. As was the case with the cities of Hierakonpolis and Elkab, the combination within the same area of both desert pasturage and **alluvial arable** land (land suitable for growing crops) was a particularly attractive one for early settlement; this combination **no doubt contributed to** the **prosperity** of the Memphis region from early predynastic times.

此外,孟斐斯的地理位置不仅有利于控制河流贸易,而且还有利于控制沙漠贸易路线。该地区的两个冰水扇使人们能进入到东部沙漠广阔的河道系统中。在前王朝时代, Digla 河可能是一条孟斐斯地区和近东地区之间的贸易路线,在马迪地区的埃及前王朝时代的聚居点中发现的大量外国文物**能够证明这一点**。能够进入并控制埃及和近东地区之间的贸易路线,似乎是埃及统治者们国家刚建成时的**当务之急**。想要垄断对外贸易的渴望,**可能是**埃及政治统一背后的一

批注 | 8|: respect
 •n. 尊敬, 尊重; 方面; 敬意
 •vt. 尊敬, 尊重; 遵守

批注 | 9|: floodplain
 •n. 泛滥平原

批注 | 10|: outwash
 •n. [地质] 冰水沉积; 消融, 冲蚀

批注 | 11|: prominent
 •adj. 突出的, 显著的; 杰出的; 卓越的

批注 | 12|: constriction
 •n. 收缩; 压缩; 狭窄感; 压缩物

批注 | 13|: Furthermore
 [fɜːrðər'mɔːr]
 •adv. 此外; 而且

批注 | 14|: preoccupation
 英 [priːɒkjʊ'peɪʃn] 美 [priːɑːkjʊ'peɪʃn]
 •n. 全神贯注, 入神; **当务之急**; 关注的事物; 抢先占据; 成见

批注 | 15|: accessible
 英 [ək'sesəbl̩] 美 [ək'sesəbl̩]
 •adj. 易接近的; 可进入的; 可理解的

个主要因素。在重要贸易路线与尼罗河谷的交汇处建立国家首都绝非偶然。此外，Hof 河和 Digla 河为孟斐斯地区提供了沙漠牧场。以 Hierakonpolis 和 ElKab 城为例，沙漠牧场和冲积耕地（适合耕种农作物的土地）在同一片区域的结合，使这片地区成为一个特别有吸引力的早期定居点；这样的组合无疑促进了前王朝时代早期孟斐斯地区的繁荣。

批注 [16]: alluvial

英 [ə'lu:viəl] 美 [ə'lu:viəl]

•adj. 冲积的

批注 [17]: arable

英 ['ærəbl] 美 ['ærəbl]

•adj. 适于耕种的；可开垦的

•n. 耕地

批注 [18]: prosperity

英 [prɒ'sperəti] 美 [pra:'sperəti]

•n. 繁荣，成功

TPO 51 – 2 Population Growth in Nineteenth-Century Europe 十九世纪欧洲人口的增长

Because of industrialization, but also because of a vast increase in agricultural output without which industrialization would have been impossible, Western Europeans by the latter half of the nineteenth century enjoyed higher standards of living and longer, healthier lives than most of the world's peoples. In Europe as a whole, the population rose from 188 million in 1800 to 400 million in 1900. By 1900, virtually every area of Europe had contributed to the tremendous surge of population, but each major region was at a different stage of demographic change.

19 世纪下半叶，西方的欧洲人比世界上的大多数人享有更高的生活水平、活得更长久、更健康，这一切都离不开工业化，同时也离不开农业产出的大幅增长，因为农产品的增长才使工业化成为可能。在整个欧洲，人口从 1800 年的 1.88 亿增长到了 1900 年的 4 亿。到 1900 年为止，欧洲几乎每个地区的人口数量都在激增，但是每个主要地区都处于人口变化的不同阶段。

Improvements in the food supply continued trends that had started in the late seventeenth century. New lands were put under cultivation, while the use of crops of American origin, particularly the potato, continued to expand. Setbacks did occur. Regional agricultural failures were the most common cause of economic recessions until 1850, and they could lead to localized famine as well. A major potato blight (disease) in 1846-1847 led to the deaths of at least one million persons in Ireland and the emigration of another million, and Ireland never recovered the population levels the potato had sustained to that point. Bad grain harvests at the same time led to increased hardship throughout much of Europe.

食品供应的提升延续了自 17 世纪末开始的趋势。（人们）开辟新的土地用来耕种，而种植美国本土作物，尤其是马铃薯，其规模还在继续扩大。这确实造成了一些问题。到 1850 年，地区农业的失败依然是经济衰退最常见的原因，也可能导致局部地区发生饥荒。1846 年到 1847 年间，一种马铃薯晚疫病导致爱尔兰至少一百万人死亡，而另外的一百万人选择了移民，从那之后爱尔兰的人口再也没有恢复到之前这些马铃薯所能养活的人口数量水平。同时，粮食歉收也使得欧洲部分地区面临更多的困难。

After 1850, however, the expansion of foods more regularly kept pace with population growth, though the poorer classes remained malnourished. Two developments were crucial. First, the application of science and new technology to agriculture increased. Led by German universities, increasing research was devoted to improving seeds, developing chemical fertilizers, and advancing livestock. After 1861, with the development of land-grant universities in the United States that had huge agricultural programs, American crop-production research added to this mix. Mechanization included the use of horse-drawn harvesters and seed drills, many developed initially in the United States. It also included mechanical cream separators and other food-processing devices that improved supply.

然而，1850 年后，食物的增加慢慢跟上了人口增长的节奏。尽管贫困阶层仍然营养不良。两种发展至关重要。第一，科学和新技术在农业上的应用增加了。在德国大学的领导下，越来越多的人致力于研究如何改良种子、发展化肥和促进畜牧业发展。1861 年后，随着有着庞大农业项目的美国赠地大学的发展，美国农作物产量研究也加入到了这一系列的研究当中。机械化包括使用马拉收割机和播种机，这些机器的使用最初在美国发展起来。这些机器还包括机械奶

油分离器和其他提升供应水平的食品加工设备。

The second development involved industrially based transportation. With trains and steam shipping, it became possible to move foods to needy regions within Western Europe quickly. Famine (as opposed to malnutrition) became a thing of the past. Many Western European countries, headed by Britain, began also to import increasing amounts of food, not only from Eastern Europe, a traditional source, but also from the Americas, Australia, and New Zealand. Steam shipping, which improved speed and capacity, as well as new procedures for canning and refrigerating foods (particularly after 1870), was fundamental to these developments.

第二个发展涉及工业运输。通过火车和蒸汽船运输，人们可以迅速地将食物运输到西欧贫困地区。饥荒（和营养不良不同）成为了过去式。许多以英国为首的西欧国家也开始进口越来越多的粮食，不仅从东欧这一传统的粮食来源进口食物，还从美国、澳大利亚和新西兰进口食物。能够提高运输速度和运输容量的蒸汽船，以及装罐和冷藏食物的新工艺（特别是在 1870 年以后），都为这些发展奠定了基础。

Europe's population growth included one additional innovation by the nineteenth century: it combined with rapid urbanization. More and more Western Europeans moved from countryside to city, and big cities grew most rapidly of all. By 1850, over half of all the people in England lived in cities, a first in human history. In one sense, this pattern seems inevitable: growing numbers of people pressed available resources on the land, even when farmwork was combined with a bit of manufacturing, so people crowded into cities seeking work or other resources. Traditionally, however, death rates in cities surpassed those in the countryside by a large margin; cities had maintained population only through steady immigration. Thus rapid urbanization should have reduced overall population growth, but by the middle of the nineteenth century this was no longer the case. Urban death rates remained high, particularly in the lower-class slums, but they began to decline rapidly.

19 世纪欧洲人口的增长还包含了另一项创新：它与快速城市化进程相结合。越来越多的西欧人从农村迁移到城市，大城市的人口增长得最快。到 1850 年，英国有一半以上的人居住在城市，这种情况在人类历史上首次发生。从某种意义上说，这种模式看似是不可避免的：越来越多的人压榨一片土地上可以利用的资源，即使是当农业与小部分制造业结合起来的时候也是如此，因此人们涌入城市寻找工作或其他资源。然而，传统上来说，城市的死亡率远远超过了农村；城市只能通过稳定的移民来维持人口。所以，快速的城市化进程应该会降低总人口增长率，但到了 19 世纪中叶，情况就不再如此。城市的人口死亡率仍然很高，特别是在下层贫民区，但是人口死亡率开始迅速下降。

The greater reliability of food supplies was a factor in the decline of urban death rates. Even more important were the gains in urban sanitation, as well as measures such as inspection of housing. Reformers, including enlightened doctors, began to study the causes of high death rates and to urge remediation. Even before the discovery of germs, beliefs that disease spread by "miasmas" (noxious forms of bad air) prompted attention to sewers and open garbage; Edwin Chadwick led an exemplary urban crusade for underground sewers in England in the 1830s. Gradually, public health provisions began to cut into customary urban

mortality rates. By 1900, in some parts of Western Europe life expectancy in the cities began to surpass that of the rural areas. Industrial societies had figured out ways to combine large and growing cities with population growth, a development that would soon spread to other parts of the world.

粮食供应的可靠性是城市人口死亡率下降的一个因素。更重要的是城市卫生设施的改善，以及房屋检修等措施。改革者们，包括一些有见识的医生，开始研究人口死亡率高的原因，并提出补救办法。甚至是在发现细菌之前，人们就相信疾病是由“瘴气”（有害的坏空气）传播的，所以需要注意下水道清洁和露天垃圾的清理；19世纪30年代，查德威克在英国引领了一次模范性的城市运动，要求对城市下水道进行改革。渐渐地，关于公共卫生的规定开始减少城市人口死亡率。到1900年，在西欧的一些地区，城市人口的预期寿命开始超过农村地区。工业社会已经找到了将城市发展和人口增长结合起来的方法，这种发展很快就会传播到世界的其他地方。

TPO 51 – 3 Surface Fluids on Venus and Earth 金星和地球表面的流体

A fluid is a substance, such as a liquid or gas, in which the component particles (usually molecules) can move past one another. Fluids flow easily and conform to the shape of their containers. The geologic processes related to the movement of fluids on a planet's surface can completely resurface a planet many times. These processes derive their energy from the Sun and the gravitational forces of the planet itself. As these fluids interact with surface materials, they move particles about or react chemically with them to modify or produce materials. On a solid planet with a hydrosphere the combined mass of water on, under, or above a planet's surface and an atmosphere, only a tiny fraction of the planetary mass flows as surface fluids. Yet the movements of these fluids can drastically alter a planet. Consider Venus and Earth, both terrestrial planets with atmospheres.

流体是一种物质，如液体或气体，流体的组成粒子（通常是分子）可以相互移动。流体很容易移动，形状会随容器的形状而变。与行星表面流体运动有关的地质过程可以多次使行星表面发生彻底的改变。这些地质过程从太阳和行星自身的引力中获得能量。当这些流体与表面物质相互作用时，它们的粒子发生交换或者发生化学反应以改变或者创造新的物质。在一个拥有水圈和大气的固体行星上，行星表面的流体只占其重量的一小部分。然而，这些流体的运动可以极大地改变一颗行星。比如金星和地球，这两颗类地行星都拥有大气层。

Venus and Earth are commonly regarded as twin planets but not identical twins. They are about the same size, are composed of roughly the same mix of materials, and may have been comparably endowed at their beginning with carbon dioxide and water. However, the twins evolved differently, largely because of differences in their distance from the Sun. With a significant amount of internal heat, Venus may continue to be geologically active with volcanoes, rifting, and folding. However, it lacks any sign of a hydrologic system (water circulation and distribution): there are no streams, lakes, oceans, or glaciers. Space probes suggest that Venus may have started with as much water as Earth, but it was unable to keep its water in liquid form. Because Venus receives more heat from the Sun, water released from the interior evaporated and rose to the upper atmosphere where the Sun's ultraviolet rays broke the molecules apart. Much of the freed hydrogen escaped into space, and Venus lost its water. Without water, Venus became less and less like Earth and kept an atmosphere filled with carbon dioxide. The carbon dioxide acts as a blanket, creating an intense greenhouse effect and driving surface temperatures high enough to melt lead and to prohibit the formation of carbonate minerals. Volcanoes continually vented more carbon dioxide into the atmosphere. On Earth, liquid water removes carbon dioxide from the atmosphere and combines it with calcium, from rock weathering, to form carbonate sedimentary rocks. Without liquid water to remove carbon from the atmosphere, the level of carbon dioxide in the atmosphere of Venus remains high.

金星和地球通常被认为是双胞胎行星，但它们却又不完全相同。它们的大小大致相同，大体上由相同的材料组成，并且相比其他行星，它们可能自诞生之时起就含有二氧化碳和水。然而，因为它们与太阳之间距离的不同，这对双胞胎行星的演变方式也大为不同。金星内部含有大量热能，所以在金星上，火山、裂隙、折叠等地质活动可能会一直很活跃。然而，它没有任何水

文系统（水循环和分布）的迹象：没有溪流、湖泊、海洋或冰川。航天探测器显示，金星和地球的含水量在开始的时候可能是一样的，但是金星无法将水以液态的形式保存。因为金星从太阳那里接收到更多的热量，从内部释放的水分会被蒸发，上升到上层大气中，在那里太阳的紫外线会将水分子分解。大部分被释放出来的氢逃逸到太空中，而金星便失去了水。没有了水，金星和地球变得越来越不相似，在金星的大气层中充满了二氧化碳。二氧化碳起到毛毯的作用，产生强烈的温室效应，使金星的表面温度变得高到足以熔化铅，并阻止碳酸盐矿物的形成。火山不断向大气中排放更多的二氧化碳。在地球上，液态水从大气中带走二氧化碳，并使之与钙结合，从岩石风化，到形成碳酸盐沉积岩（都是二氧化碳与钙结合的实例）。金星上没有液态水去除大气中的碳，所以金星大气层中二氧化碳的含量一直很高。

Like Venus, Earth is large enough to be geologically active and for its gravitational field to hold an atmosphere. Unlike Venus, it is just the right distance from the Sun so that temperature ranges allow water to exist as a liquid, a solid, and a gas. Water is thus extremely mobile and moves rapidly over the planet in a continuous hydrologic cycle. Heated by the Sun, the water moves in great cycles from the oceans to the atmosphere, over the landscape in river systems, and ultimately back to the oceans. As a result, Earth's surface has been continually changed and eroded into delicate systems of river valleys—a remarkable contrast to the surfaces of other planetary bodies where impact craters dominate. Few areas on Earth have been untouched by flowing water. As a result, river valleys are the dominant feature of its landscape. Similarly, wind action has scoured fine particles away from large areas, depositing them elsewhere as vast sand seas dominated by dunes or in sheets of loess (fine-grained soil deposits). These fluid movements are caused by gravity flow systems energized by heat from the Sun. Other geologic changes occur when the gases in the atmosphere or water react with rocks at the surface to form new chemical compounds with different properties. An important example of this process was the removal of most of Earth's carbon dioxide from its atmosphere to form carbonate rocks. However, if Earth were a little closer to the Sun, its oceans would evaporate; if it were farther from the Sun, the oceans would freeze solid. Because liquid water was present, self-replicating molecules of carbon, hydrogen, and oxygen developed life early in Earth's history and have radically modified its surface, blanketing huge parts of the continents with greenery. Life thrives on this planet, and it helped create the planet's oxygen and nitrogen-rich atmosphere and moderate temperatures.

和金星一样，地球足够大，地质活动很活跃，它的引力也能维持大气层。而与金星不同的是，地球与太阳之间的距离刚刚好，因此这一温度范围能够使水以液体、固体和气体的形式存在。所以水极易流动，以连续的水文循环的形式在地球上快速地流动。在太阳的加热作用下，水从海洋循环到大气中，经过河流系统后，又再次回到海洋中。因此，地球的表面不断地发生变化，被侵蚀成复杂的河谷系统——这与其他行星表面布满的陨石坑形成了鲜明的对比。地球上只有极少数地区没有流动的水。因此，河谷是地球地貌的主要特征。同样，风力作用也将细颗粒从大片的区域吹走，使这些细颗粒在其他地方堆积成为由沙丘和黄土（精细的土壤沉积物）组成的茫茫沙海。这些流体运动是由太阳热能作用下产生的重力流系统导致的。当大气中的气体或水与地表的岩石发生反应形成性质不同的新化合物时，就会发生其他地质变化。这个过程的一个重要例子就是从大气中除去地球上大部分的二氧化碳，形成碳酸盐岩。然而，如果地球离太阳稍微近一点，地球上的海洋就会蒸发；如果离太阳更远一些，海洋就会结冰。因为液态水

的存在，自我复制的碳、氢、氧分子形成了地球早期的生命，从根本上改变了地表，使大片陆地被绿色覆盖。生命在这个星球上蓬勃发展，而生命的产生也有利于为地球创造富氧和富氮的大气层和适宜的温度。