

TPO 7 – 1 The Geologic History of the Mediterranean 地中海的地质历史

感悟：首先要弄懂所有的专有名词的大概意思，比如 **Glomar Challenger** 是一艘巡洋舰的名字。

In 1970 geologists Kenneth J. Hsu and William B.F. Ryan were collecting research data **while aboard the oceanographic research vessel Glomar Challenger**. An objective of this particular cruise was to investigate the floor of the Mediterranean and to resolve questions about its geologic history. One question was related to evidence that the invertebrate fauna (animals without spines) of the Mediterranean had changed abruptly about 6 million years ago. Most of the older organisms were nearly wiped out, although a few hardy species survived. A few **managed to migrate** into the Atlantic. **Somewhat later**, the migrants returned, bringing new species with them. Why did the near extinction and migrations occur?

1970年，地理学家 Kenneth J. Hsu 和 William B.F. Ryan **在海洋调查船 Glomar Challenger** 号上收集调研资料。这次特别巡航的一个目的是调查地中海的地层以及解决关于其地质历史的问题。其中一个问题是有关地中海地区无脊椎动物（没有脊椎的动物）于 600 万年前发生剧变的证据。大部分更加古老的生物都几乎灭绝了，尽管一些顽强的种类得以生存。很少的一些动物**成功地迁移到了**大西洋。**不久后**，这些动物又回来了，并带回来新的物种。为什么这次较近的动物灭绝和迁移会发生呢？

感悟：尝试推测**出题思路**，比如由**标蓝的句子中 had been** 知道，这些科学家不是第一次发现这个东西的。

Another task for the Glomar Challenger's scientists was to try to determine the origin of the **domelike masses buried deep beneath the Mediterranean seafloor**. These structures had been detected years earlier by echo-sounding instruments, but they had never been penetrated in the course of drilling. Were they salt domes such as are common along the United States Gulf Coast, and if so, why should there have been so much solid crystalline salt beneath the floor of the Mediterranean?

Glomar Challenger 号上科学家们的另一个任务是尝试去确定**深埋在地中海海底穹顶状巨块**的起源。这些结构在早些年被回声探测器探测过，但是它们从未被钻探过。它们是像美国墨西哥海湾海岸一带的含盐穹顶状巨块吗？如果是的话，为什么在地中海海底之下会有这么多固体的结晶盐呢？

感悟：Not a single pebble = non of these pebbles

With question such as these clearly before them, the scientists **aboard** the Glomar Challenger processed to the Mediterranean to search for the answers. On August 23, 1970, they recovered a sample. The sample consisted of pebbles of hardened sediment that had once been soft, deep-sea mud, as well as granules of gypsum and fragments of volcanic rock. **Not a single pebble was found that might have indicated that the pebbles came from the nearby continent**. In the days following, samples of solid gypsum were repeatedly brought on deck

as drilling operations penetrated the seafloor. Furthermore, the gypsum was found to possess peculiarities of composition and structure that suggested it had formed on desert flats. Sediment above and below the gypsum layer contained tiny marine fossils, indicating open-ocean conditions. As they drilled into the central and deepest part of the Mediterranean basin, the scientists took solid, shiny, crystalline salt from the core barrel. **Interbedded with the salt were thin layers of what appeared to be windblown silt.**

带着这些清楚摆在他们面前的问题，科学家们登上 Glomar Challenger 号前往地中海寻找答案。1970 年 8 月 23 日，他们找到了一个样本。这个样本由石膏块和火山岩碎块组成。周围没有发现一块能说明这些小石头来自附近的大陆。接下来的日子里，随着海底岩层钻探实验的进行，固体石膏样本被不断地放在甲板上。而且，这些膏状物的组成和结构特性表明它们形成于沙漠。在石膏层上下的沉积物中包含了微小的海洋生物化石，说明了这是开放性的海洋环境。当钻到地中海盆地中心的最深处时，科学家们从钻管中获得了坚实的、光亮的结晶盐。跟结晶盐嵌在一起的薄层像是被风吹起的泥沙层。

The time had come to formulate a hypothesis. The investigators theorized that about 20 million years ago, the Mediterranean was a broad seaway linked to the Atlantic by two narrow straits. **Crustal movements** closed the straits, and the landlocked Mediterranean began to evaporate. Increasing salinity caused by the evaporation resulted in the extermination of scores of invertebrate species. Only a few organisms especially tolerant of very salty conditions remained. As evaporation continued, the remaining brine (salt water) became so dense that the calcium sulfate of the hard layer was **precipitated.** In the central deeper part of the basin, the last of the brine evaporated to precipitate more soluble sodium chloride (salt). Later, under the weight of **overlying** sediments, this salt flowed plastically upward to form salt domes. Before this happened, however, the Mediterranean was a vast desert 3,000 meters deep. **Then, about 5.5 million years ago came the deluge.** As a result of crustal adjustments and faulting, the Strait of Gibraltar, where the Mediterranean now connects to the Atlantic, opened, and water cascaded spectacularly back into the Mediterranean. Turbulent waters **tore into** the hardened salt flats, broke them up, and ground them into the pebbles observed in the first sample taken by the Challenger. **As the basin was refilled,** normal marine organisms returned. Soon layer of oceanic **ooze** began to accumulate above the old hard layer. The salt and gypsum, the faunal changes, and the unusual gravel provided abundant evidence that the Mediterranean was once a desert.

gypsum: a mineral made of calcium sulfate and water.

时间阐明了一个假设。调查者们构思了这样的理论：大约 2 000 万年前，地中海是一条宽阔的航道，它通过两条狭窄的海峡与大西洋连接。**地壳运动**封闭了**海峡**，被陆地包围的地中海也开始蒸发。由蒸发引起的越来越高的盐度造成无脊椎动物种类的灭绝。只有一些能抵抗高盐度条件的物种保留下来。随着蒸发的继续进行，盐水浓度太高以致硬地层的硫酸钙发生**沉淀**。在盆地的中间深处，剩余盐水的持续蒸发形成更多的**可溶的氯化钠**（盐）。后来，在**上层**沉淀物的重压下，盐**可塑地**向上形成了含盐的圆顶。然而在这之前，地中海是一个 3 000 米深的大沙漠。

然后，550 万年前发生了洪水。作为地壳调整和断层作用的结果，现在连接地中海和大西洋的直布罗陀海峡打开了，水流像瀑布一样壮观地涌回地中海。湍急的水流冲击并摧毁了坚硬的含盐层，把它们磨成了 Challenger 号获得的第一份样本中人们所观察到的鹅卵石。随着盆地再次填充，普通的海洋生物又回来了。不久后海洋软泥层开始在原先的硬地层上堆积。盐、石膏、动物区系的变更，还有不寻常的沙砾层都为地中海曾经是片沙漠的理论提供了充分的证据。

TPO 7 - 2 Ancient Rome and Greece 古罗马和希腊

There is a quality of cohesiveness about the Roman world that applied neither to Greece nor perhaps to any other civilization, ancient or modern. Like the stone of Roman wall, which were held together both by the regularity of the design and by that peculiarly powerful Roman cement, so the various parts of the Roman realm were bonded into a massive, monolithic entity by physical, organizational, and psychological controls. The physical bonds included the network of military garrisons, which were stationed in every province, and the network of stone-built roads that linked the provinces with Rome. The organizational bonds were based on the common principles of law and administration and on the universal army of officials who enforced common standards of conduct. The psychological controls were built on fear and punishment-on the absolute certainty that anyone or anything that threatened the authority of Rome would be utterly destroyed.

罗马具有一种希腊和其他任何不论是古代的还是现在的文明都不具备的凝聚力。罗马墙上的石块是靠设计的规整和特别有力的水泥而被固定在一起，与此相同，罗马帝国的各个部分也因物理的、组织的和精神的束缚而组成了一个坚若磐石的整体。物理的束缚包括驻扎在每个省的戍卫军组成的网络和连通每个省与罗马的用石头铺成的道路网络。组织上的束缚则基于法律和行政的一般原则，以及遍布各地、统一行动的军政府。精神上的控制则建立在恐惧和惩罚上——毫无疑问，任何人或任何事，只要威胁到罗马的权威，都终将被摧毁。

The source of Roman obsession with unity and cohesion may well have lain in (lie in 在于) the pattern of Rome's early development. Whereas Greece had grown from scores of scattered cities, Rome grew from one single organism. While the Greek world had expanded along the Mediterranean seas lanes, the Roman world was assembled by territorial conquest. Of course, the contrast is not quite so stark: in Alexander the Great the Greeks had found the greatest territorial conqueror of all time; and the Romans, once they moved outside Italy, did not fail to learn the lessons of sea power. Yet the essential difference is undeniable. The key to the Greek world lay in its high-powered ships; the key to Roman power lay in its marching legions. The Greeks were wedded to the sea; the Romans, to the land. The Greek was a sailor at heart; the Roman, a landsman.

罗马人对统一和团结的执著可能源自于罗马早期的发展模式。while 希腊是从二十几个分散的城邦发展而来，然而罗马则是从单个组织发展而来。希腊沿着地中海航线扩张，然而罗马帝国则通过领土的占领而壮大。当然，它们的对比也不是那么的绝对：在亚历山大大帝时期，希腊找到了他们整个历史中最大的领地征服者；罗马人虽曾一度迁移到意大利之外，但他们却没有忘记海洋的力量。然而，他们之间本质的区别是不容否认的。希腊世界的关键是强大的船队，而罗马帝国的关键则是他们行进的部队。希腊人死守着海洋，罗马人则死守着土地。希腊人是天生的水手，罗马人则是陆上强兵。

Certainly, in trying to explain the Roman phenomenon, one would have to place great

emphasis on this almost **instinct** for the **territorial imperative**. Roman **priorities** lay in the organization, exploitation, and defense of their territory. **In all probability it was** the fertile plain of Latium, **where the Latins who founded Rome originated**, that created the habits and skills of landed settlement, landed property, landed economy, landed administration, and a land-based society. **From this arose the Roman genius for military organization and orderly government.** In turn, a deep attachment to the land, and to the **stability which rural life engenders**, fostered the Roman **virtues**: gravitas, a sense of responsibility, pietas, a sense of devotion to family and country, and iustitia, **a sense of the natural order**.

毫无疑问的是，为了解释罗马现象，人们应该极大地强调他们的几乎是本能的领土观念。罗马人的天性就在于对领土的组织、扩张和防御。完全也可能是 Latium 平原——拉丁人最初建立罗马的地方，造就了罗马人陆地定居、陆地财产、陆地经济、陆地行政以及以陆地基础的社会习惯和技巧。在此基础上也产生了罗马人的军事组织和政府管理的才能。反过来，对土地以及稳定乡村生活的深深的依恋孕育了罗马人的品格：gravitas，一种责任感；peitas，对家庭和国家的牺牲精神；以及 iustitia，一种对自然秩序的使命。

Modern attitudes to Roman civilization range from the infinitely impressed to the thoroughly disgusted. As always, there are the power worshippers, especially among historians, who are predisposed to admire whatever is strong, who feel more attracted to the might of Rome than to the subtlety of Greece. At the same time, there is a solid body of opinion (确凿的观点) that dislikes Rome. For many, Rome is at best the imitator and the continuator of Greece on a larger scale. Greek civilization had quality; Rome, mere quantity. Greece was original; Rome, derivative. Greece had style; Rome had money. Greece was the inventor; Rome, the research and development division. Such indeed was the opinion of some of the more intellectual Romans. "Had the Greeks held novelty in such disdain as we," asked Horace in his epistle, "what work of ancient date would now exist?"

现在人们对罗马的态度各异，从无限的崇尚到彻底的反感。经常有权威的崇拜者，尤其是在历史学家中，不由自主地推崇强大，他们对罗马权力的欣赏远胜于对希腊狡黠的欣赏。与此同时，有一种固化的观念厌恶罗马。对于很多人而言，罗马至多不过是对希腊更大规模的模仿和延续，希腊文明拥有质量，罗马则仅仅拥有数量。希腊是原始的，而罗马则是派生的。希腊人有风格，而罗马人只有钱。希腊人是发明者，而罗马人做研究和扩展分支。这些实际上是一些高智商罗马人的观点。“如果希腊人像我们一样轻视创新？”Horace 在他的信件中问道“那么有什么古时候的作品能现存于世呢？”

Rome's debt to Greece was enormous. The Romans adopted Greek religion and moral philosophy. In literature, Greek writers were consciously used as models by their Latin successors. It was absolutely accepted that an educated Roman should be fluent in Greek. In speculative philosophy and the sciences, the Romans made virtually no advance on early achievements.

罗马的确欠着希腊无数的债务。罗马人吸收了希腊人的宗教和伦理哲学。在文学上，希腊作家

被下意识地当作他们拉丁后裔的模范。毋庸置疑的是，一个受过教育的罗马人一定会讲流利的希腊语。在推理哲学和科学上，罗马人实际上没有超过前期希腊的成就。

Yet it would be wrong to suggest that Rome was somehow a junior partner in Greco-Roman civilization. The Roman genius was projected into new spheres -especially into those of law, military organization, administration, and engineering. Moreover, the tensions that arose within the Roman state produced literary and artistic sensibilities of the highest order. It was no accident that many leading Roman soldiers and statesmen were writers of high caliber.

然而如果认为罗马是希腊-罗马文化的晚辈那就错了。罗马的天才们突破了新的领域—尤其是在法律、军队的组织、管理和工程上。而且，由罗马国家内部产生的压力促使文学和艺术的造诣达到最高水平。所以很多罗马的高级军官和政治家们都是高素质的作家。

单词引申: caliber

Also the further an executive rises the more he or she must deal with high-caliber people who know how to get what they want are difficult strong-willed and have a sharp appetite for power. 此外，管理者升迁到越高的位置，他/她就必须越多地与更有才干的人打交道，这些人知道如何得到自己想要的，他们往往难以相处，意志坚定，有更强的权力欲。

TPO 7 - 3 Agriculture, Iron, and the Bantu Peoples 农业、铁和班图人

There is evidence of agriculture in Africa prior to 3000 B.C. It may have developed independently, but many scholars believe that **the spread of agriculture and iron throughout Africa** linked it to the major centers of **the Near East** and **Mediterranean world**. The **drying up** of what is now the Sahara desert had pushed many peoples to the south into sub-Saharan Africa. These peoples settled at first in **scattered** hunting-and-gathering bands, although in some places near lakes and rivers, people who fished, with **a more secure food supply**, lived in larger population **concentrations**. Agriculture seems to have reached these people from the **Near East**, **since** the first domesticated crops were millets and sorghums whose origins are not African but **west Asian**. **Once the idea of planting diffused**, Africans began to develop their own crops, such as certain varieties of rice, and they demonstrated a continued receptiveness to new imports. The proposed areas of the domestication of African crops lie in a band that extends from Ethiopia across southern Sudan to West Africa. **Subsequently**, other crops, such as bananas, were introduced from Southeast Asia.

在非洲，早在公元前 3 000 年以前就有了农业的迹象。它可能是独立发展的，但很多学者认为农业和铁器在非洲的传播将非洲与近东的中心和地中海世界联系了起来。就是现在的撒哈拉沙漠地区的不断变得**干旱**使得很多人向南迁徙到撒哈拉沙漠以南的非洲地区。这些部落起初**分散**地定居，并仍靠打猎和采集维生，尽管是在靠近湖泊和河流的地区人们以捕鱼为业，**有较稳定的食物供给**，**聚集了**较多的人口。农业技术可能来自于**近东**最终为非洲人所知，**因为**最初驯化的农作物是起源于**西亚**而不是非洲的小米和高粱。**一旦种植的思想传播开来**，非洲人就开始培育他们自己的农作物，比如某些水稻，并且他们一直愿意接受新的外来作物。人们认为驯化非洲作物的地区从埃塞俄比亚一直延伸到苏丹的南部，再到西非。**接下来**，其他的作物，比如香蕉，就从东南亚传入到非洲了。

Livestock also came from **outside Africa**. Cattle were introduced from Asia, as probably were domestic sheep and goats. Horses were apparently introduced by the Hyksos invaders of Egypt (1780-1560 B.C.) and then spread across the Sudan to West Africa. Rock paintings in the Sahara indicate that horses and chariots were used to traverse the desert and that by 300-200 B.C., there were trade routes across the Sahara. Horses were adopted by peoples of the West African savannah, and later their powerful cavalry forces allowed them to **carve out(开拓)** large empires. Finally, the camel was introduced around the first century A.D. This was an important innovation, because the camel's **abilities to thrive in harsh desert conditions** and to carry large loads cheaply made it an effective and efficient means of transportation. The camel transformed the desert from a barrier into **a still difficult, but more accessible**, route of trade and communication.

家禽也来自于**非洲以外的地区**。牛是从亚洲引入的，家养绵羊和山羊也可能是这样的。马匹显然是由埃及的 Hyksos 入侵者（1780-1560B.C.）引入的，之后就从苏丹传到西非。撒哈拉石画表明马匹和马车曾被用于穿越沙漠，并且，在公元前 300 到 200 年间，有商队横穿撒哈拉

沙漠的路线。西非大草原上的人们使用马匹，后来他们强大的骑兵力量使他们**缔造**了庞大的帝国。最后，骆驼大约在公元 1 世纪被引入到非洲。这是一次重要革新，因为骆驼**有能力生存在恶劣的沙漠环境**，另外，骆驼可以便宜地运输大量的载荷，这使得它们成为了一种方便高效的运输方式。骆驼使得沙漠从障碍转换为**一条虽依然艰难但已经更加容易**接近的商路和交流通道。

Iron came from West Asia, although its routes of diffusion were somewhat different than those of agriculture. Most of Africa presents a curious case in which **societies moved directly from** a technology of stone **to iron without passing through the intermediate stage** of copper or bronze metallurgy, although some early copper-working sites have been found in West Africa. **Knowledge of iron making penetrated into** the forest and savannahs of West Africa **at roughly the same time that iron making** was reaching Europe. Evidence of **iron making** has been found in Nigeria, Ghana, and Mali.

铁器来自于西亚，虽然它传播的路径跟农业技术的不同。大部分非洲表现出一种奇怪的现象，那就是他们社会直接从石器时代进步到铁器时代，而没有经过中间过渡的铜器或青铜器冶金术，尽管在西亚发现了一些早期使用铜器的地区。冶铁技术**在差不多**到达欧洲**的同时**，就穿过了森林和大草原到达非洲。在尼日尼亚，加纳和马里发现了制作铁器的证据。

This technological shift cause profound changes in the **complexity** of African societies. Iron represented power. In West Africa the blacksmith who made tools and weapons had an important place in society, often with special religious powers and functions. Iron hoes, which made the land more productive, and iron weapons, which made the warrior more powerful, **had symbolic meaning** in a number of West Africa societies. Those who knew the secrets of making iron gained ritual and sometimes political power.

科技的**革新**对非洲社会的**复杂性**产生了深刻的改变。铁器代表着力量。在西非的很多社会里，生产工具的铁匠、使土地更多产的铁锄、使战士更强大的铁制武器都有着象征意义。这些对西非社会**有着标志性的意义**。那些掌握了制铁技术的人们常可获得宗教权力，有时候获得政治权力。

Unlike in the Americas, where metallurgy was a very late and limited development, Africans had iron from a relatively early date, developing **ingenious furnaces** to produce the high **heat needed for production** and to control the amount of air that reached the carbon and iron ore necessary for making iron. Much of Africa moved right into the Iron Age, taking the basic technology and adapting it to local conditions and resources.

美洲的冶铁技术发展得非常晚，并且有限，而非洲则完全不同，他们的冶铁技术从相对较早的时期就开始发展；他们制造了**精巧的高炉**以产生冶铁所需要的高温，并能控制与碳和铁矿石接触的空气用量以满足冶铁的需要。大部分非洲人直接进入了铁器时代，他们吸取了冶铁的基本技术并**使之与当地的条件和资源相适应**。

The **diffusion** of agriculture and later of iron **was accompanied by** a great movement of people

who may have carried these innovations. These people probably originated in eastern Nigeria. Their migration may have been **set in** motion by an increase in population caused by a movement of peoples **fleeing the desiccation, or drying up, of the Sahara**. They spoke a language, proto-Bantu ("Bantu" means "the people"), which is the parent tongue of a language of a large number of Bantu languages still spoken throughout sub-Saharan Africa. Why and how these people spread out into central and southern Africa **remains a mystery**, but archaeologists believe that their iron weapons allowed them to conquer their hunting-gathering **opponents**, who still used **stone implements**. Still, the process is uncertain, and peaceful migration-or simply rapid **demographic** growth-may have also caused the "Bantu explosion".

(demographic adj. 人口结构的；人口统计的)

农业和后来冶铁技术是**伴随着**那些已经掌握了新技术的人们的大迁徙而**传播**的。这些人可能来源于尼日尼亚东部。为了**逃避撒哈拉沙漠的不断干旱**，人们迁徙**到**尼日尼亚东部，使这里的人口增多，于是这里的人们也接着迁徙。他们所说是前班图语，也就是现在仍然为广泛的撒哈拉沙漠南部非洲人所使用的班图语的源头。这些人为什么**扩散**到非洲中部和南部？他们怎么迁徙的？**仍然是迷**。不过考古学家们相信他们的铁制武器足以让他们战胜那些靠采集打猎为生的**敌人**，因为这些人仍然利用**石质工具**。**不过**过程仍然无人知道，另外，和平的移民或者简单的**人口**增长，都可能导致班图的扩张。