托福阅读素材实例解析：地中海的地质历史

The Geologic History of the Mediterranean

地中海的地质历史

1.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?

段落梗概：1970 年，地理学家在海洋调查船 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于 600 万年前发生剧变的证据。并介绍了具体要解决的问题。

2.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?

段落梗概：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。并介绍了具体要解决的问题。

3.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.

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段落梗概：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。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。

4.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.

段落梗概：时间阐明了一个假设。调查者们构思了一个理论：大约 2 000 万年前，地中海是通过两条海峡与大西洋连接的宽阔航道。地壳运动使海峡封闭，地中海的蒸发使得只有耐盐生物存活，使得硬地层的硫酸钙发生沉淀。后来，在上层沉淀物的重压下，盐向上形成了含盐的圆顶。在这之前，地中海是一个 3 000 米深的大沙漠。然后地壳调整和断层作用使得新海峡形成。

5.The salt and gypsum, the faunal changes, and the unusual gravel provided abundant evidence that the Mediterranean was once a desert.

段落梗概：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。

疑难词：

spectacular 壮观的

crustal 地壳的

faulting 断层作用;指责

Fragment 碎片;片段

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Peculiarity 特色;特性

Interbedded 层系间的;层间的

Strait 海峡

Precipitate 沉淀;下降

Deluge 洪水;倾盆大雨

Cascade 倾泻;小瀑布

Ooze 软泥;满满渗出

Mediterranean 地中海

Vessel 船;舰

Cruise 巡航

Spine 脊柱;脊椎

Silt 淤泥

Salinity 盐分

Echo 回声

长难句：

1.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.

句子类型：定语从句 +

句子拆分:

主干：the Strait of Gibraltar opened and water cascaded

定语从句：where the Mediterranean now connects to the Atlantic

翻译：由于地壳运动和断层作用，在地中海与大西洋连接处的直布罗陀布海峡形成了，水流瀑布般地泻下到地中海。

2.Not a single pebble was found(that might have indicated that the pebbles came from the nearby continent).

句子类型：定语从句+宾语从句

句子拆分：

主干：Not a single pebble was found

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定语从句：pebble (that might have indicated that the pebbles came from the nearby continent)包含一个宾语从句 that the pebbles came from the nearby continent

翻译：周围没有发现一块能说明这些小石头来自附近的大陆。

文章标题：

The Geologic History of the Mediterranean

A of B 结构

文章架构：

第 1.2 段：地理学家乘海洋调查船 Glomar Challenger 号上巡航的两个目的：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;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。

第 3 段：在调查过程中发现的样本反应出了哪些信息。

第 4 段：调查者们提出的假说。

第 5 段：简要说明了一下，证明地中海曾经是沙漠的证据。

文章题材：

自然科学类--地质历史研究

以上就是我们今天的托福阅读文章及分析，希望大家可以学到相应的托福阅读背景知识。

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