

TPO 22 – 1 Spartina 米草属植物

Spartina alterniflora, known as cordgrass, is a deciduous, perennial flowering plant native to the Atlantic coast and the Gulf Coast of the United States. It is the dominant native species of the lower salt marshes along these coasts, where it grows in the intertidal zone (the area covered by water some parts of the day and exposed others).

问题 1: 关于 *Spartina alterniflora* 的陈述;

互花米草, 俗称网茅, 是一种落叶的多年生开花植物, 原产自美国大西洋沿岸和墨西哥湾地区。它是这些海岸下游地区盐碱地的优势本地种, 生长在潮间带 (有时淹没在水中, 有时暴露在空气中的区域)。

首句&某细节【多选题】

These **natural salt marshes** are among the most **productive** habitats in the marine environment. Nutrient-rich water is brought to the wetlands during each high tide, making a high rate of food **production** possible. As the seaweed and marsh grass leaves die, bacteria break down the plant material, and insects, small shrimplike organisms, fiddler crabs, and marsh snails eat the decaying plant tissue, digest it, and excrete wastes high in nutrients. Numerous insects occupy the marsh, feeding on living or dead cordgrass tissue, and **redwing** blackbirds, sparrows, rodents, rabbits, and deer feed directly on the cordgrass. Each tidal cycle carries plant material into the offshore water to be used by the subtidal organisms.

问题 2: 询问原因 (**natural salt marshes productive**); 用关键词定位 **production**

问题 3: 等价替换语句 (Sentences = which of the CHOICES)

这些天然的盐碱地位于海洋环境下最肥沃的生境中。涨潮时会给沼泽带来营养丰富的海水, 使得高产量成为可能。随着海草和沼泽禾草叶子的死亡, 细菌将植物体分解, 昆虫、小型虾状浮游生物、招潮蟹和沼泽蜗牛吃掉了腐烂的植物组织, 消化后排出富含营养的排泄物。沼泽里生活着无数的昆虫, 它们以活着或死去的网茅组织为食, 红翼歌鸫、麻雀、啮齿动物、兔子以及鹿都直接以网茅为食。每一个潮汐周期都会将植物带到近海海水中, 它们可以被潮水下的生物所利用。

某细节&整段【多选题】

Spartina is an **exceedingly competitive plant**. 【】 It spreads primarily by underground stems; colonies form when pieces of the root system or whole plants float into an area and take root or when seeds float into a suitable area and germinate. 【】 *Spartina* establishes itself on substrates ranging from sand and silt to gravel and cobble and is tolerant of salinities ranging from that of near freshwater (0.05 percent) to that of salt water (3.5 percent). 【】 Because they lack oxygen, marsh sediments are high in sulfides that are toxic to most plants. 【】 *Spartina* has the ability to take up sulfides and convert them to sulfate, a form of sulfur that the plant can use; this ability makes it easier for the grass to colonize marsh environments. Another adaptive advantage is *Spartina*'s ability to use carbon dioxide more efficiently than most other plants.

问题 4: 询问整段的结构;

问题 5: 询问单词意思 (**exceedingly**);

问题 6: 询问 **Spartina** 能够如此成功竞争的原因;

问题 13: 插入语的位置 → **【】**;

米草属植物是极具竞争力的植物。它主要通过地下茎向四周扩展;当根系或整株植物漂到一个地方扎了根,或者当种子漂到一个适合的地方发芽时,群落就形成了。从泥沙地到卵砾石地,米草属植物都能生长,其耐盐度在接近淡水(0.05%)和盐水(3.5%)的范围内。由于缺乏氧气,沼泽沉积物里的硫化物含量很高,这些硫化物对多数植物而言是有毒的。米草属植物具有能够吸收硫化物并将其转换为硫酸盐(一种植物可以利用的硫形式)的能力;这种能力使得米草属植物更易在沼泽环境中生存。另一个适应性优势就是米草属植物拥有比其它植物更能有效利用二氧化碳的能力。

These characteristics make **Spartina** a valuable component of the **estuaries** where it **occurs naturally**. The plant functions as a stabilizer and a sediment trap and as a nursery area for **estuarine** fish and shellfish. Once established, a stand of **Spartina** begins to trap sediment, changing the **substrate** elevation, and **eventually the stand** evolves into a high marsh system where **Spartina** is gradually displaced by higher-elevation, brackish-water species. As elevation increases, narrow, deep channels of water form throughout the marsh. Along the east coast **Spartina** is considered valuable for its ability to prevent erosion and marshland deterioration; it is also used for coastal restoration projects and the creation of new wetland sites.

问题 7: 询问 **eventually the stand** 会怎样;

问题 8: 询问 **Spartina** 怎样帮助 **estuaries**;

这些特征使得在河口处自然生长的米草属植物成为了该地重要的组成部分。植物起到了稳定器和沉积物收集器的作用,而且还充当了河口鱼类和贝类的温床。一旦落地生根,米草属植物就开始截留沉积物,改变基质的高度,最终这片米草属植物会逐渐被更高高度的微咸淡水植物所取代,发展成为一个更高高度的沼泽系统。随着海拔高度的增加,沼泽中会遍布狭窄深凹的水道。在东海岸,人们认为米属草非常有用,因为它有防止侵蚀和沼泽退化的能力,而且它还被用于海岸恢复计划和构筑新的湿地。

第三句【多选题】

(解析说,此段中心句不是首句,言外之意,大概所有段落的中心句都大概率在首句)

Spartina was transported to Washington State in packing materials for oysters transplanted from the east coast in 1894. Leaving its insect predators behind, the cordgrass has been spreading slowly and steadily along Washington's tidal estuaries on the west coast, crowding out the native plants and drastically altering the landscape by trapping sediment. **Spartina modifies** tidal mudflats, turning them into high marshes inhospitable to the **many fish and waterfowl** that depend on the mudflats. It is already hampering the oyster harvest and the Dungeness crab fishery, and it interferes with the recreational use of beaches and waterfronts. **Spartina** has been transplanted to England and to New Zealand for land reclamation and shoreline stabilization. In New Zealand the plant has spread rapidly, changing mudflats with marshy fringes to extensive salt meadows and reducing the number and kinds of birds and animals that use the marsh.

问题 9: 询问 **Spartina** 影响 wildlife;

问题 10: 询问单词意思 (**modifies**);

1894 年, 为了将牡蛎从东海岸转移到华盛顿州, 米草属植物作为打包材料被运往华盛顿州。由于将天敌甩在了身后, 网茅沿着西海岸华盛顿州的潮汐河口缓慢而稳定地传播开来, 挤走了本地植物, 并通过截留沉积物极大地改变了当地的景观。米草属植物改造了沿海滩涂, 将其转变成高海拔沼泽, 这些沼泽对很多依赖滩涂生活的鱼类和水禽并不适合。米草属植物已经妨碍了牡蛎的打捞以及珍宝蟹的养殖, 它干扰了海滩和海滨的娱乐用途。人们将米草属植物移栽到英国和新西兰, 用于改良土地以及稳定海岸线。米草属植物在新西兰快速蔓延, 把带有泥沼边缘的泥滩变为盐碱草地, 减少了依赖于泥滩的鸟类和动物的数量及种类。

首句【多选题】

Efforts to control **Spartina** outside its natural environment have included burning, flooding, shading plants with black canvas or plastic, smothering the plants with dredged materials or clay, applying herbicide, and **mowing** repeatedly. Little success has been reported in New Zealand and England; Washington State's management program has tried many of these methods and is presently using the herbicide glyphosphate to control its spread. Work has begun to determine the feasibility of using insects as biological controls, but effective biological controls are considered years away. Even with a massive effort, it is doubtful that complete eradication of **Spartina** from nonnative habitats is possible, for it has become an integral part of these shorelines and estuaries during the last 100 to 200 years.

问题 11: 询问控制方法 (**Spartina**); 【Except】

问题 12: 询问单词意思 (**Efforts**);

mow

英 [məʊ] 美 [moʊ]

v. 割, 割草; (用镰刀) 收割庄稼

n. 草堆; 干草堆积处, 谷堆; (同 **grimace**) 皱眉

为了控制米草属植物在自然生境以外的扩散, 人们尝试了焚烧、水淹、用黑色的帆布或塑料布遮挡阳光、用疏浚物料或者粘土使其窒息、喷撒除草剂以及反复割草的方法。在新西兰和英国却鲜有成效, 华盛顿州的管理项目尝试了很多此类方法, 目前正在使用除草剂草甘膦控制它的传播。用昆虫进行生物防止的可行性已经进入考虑范围, 但是有效的生物防治还需要很多年。即使是付出巨大的努力, 我们仍然怀疑完全从非原生境中根除米草属植物的可能性, 因为在过去的 100 到 200 年间, 它已经成为这些海岸线地带和河口的有机组成部分了。

TPO 22 – 2 The Birth of Photography 摄影术的诞生

Perceptions of the visible world were greatly altered by the invention of photography in the middle of the nineteenth century. In particular, **and quite logically**, the art of painting was forever changed, though not always in the ways one might have expected. The realistic and naturalistic painters of the mid- and late-nineteenth century were all intently aware of photography -as a thing to use, to learn from, and react to.

十九世纪中叶，照相术的发明极大地改变了人们对可视世界的认知。尤其是它自然而然地使绘画艺术发生了永久性的改变，虽然并不总是以我们预期的方式。十九世纪中期与后期的现实主义和自然主义画家都高度关注照相术，将其当做一门可以使用、借鉴而且要适应的技术。

细节【多选题】

Unlike most major inventions, photography had been long and impatiently awaited. The images produced by the camera obscura, a boxlike device that used a pinhole or lens to throw an image onto a ground-glass screen or a piece of white paper, were already familiar-the device had been much employed by topographical artists like the Italian painter Canaletto in his detailed views of the city of Venice. What was lacking was a way of giving such images permanent form. This was finally achieved by Louis Daguerre (1787-1851), who perfected a way of fixing them on a silvered copper plate. His discovery, the "**daguerreotype**," was announced in 1839. 【】

问题 1: 询问 19 世纪, photography 在 painting 上的影响;

与其他重要的发明不同,照相术姗姗来迟。其实当时针孔照相机已经为大家所熟识,它是一种使用小孔或透镜将影像投射到毛玻璃屏或一张白纸上的盒状设备,这种设备已经为很多地貌风景画家所用,像意大利画家卡纳莱托就用它详细记录了威尼斯城。真正缺少的是永久保存这些图像的方法。路易斯·达盖尔(1787-1851)最终做到了这点,他完善了将影像固定到镀银铜板上的方法。他发明的“达盖尔照相法”在 1839 年公诸于世。

整段【多选题】

A second and very different process was patented by the British inventor William Henry Talbot (1800-1877) in 1841. 【】 Talbot's "**calotype**" was the first negative-to-positive process and the direct ancestor of the modern photograph. The calotype was revolutionary in its use of chemically treated paper in which areas hit by light became dark in tone, producing a negative image. 【】 This "negative," as Talbot called it, could then be used to print multiple positive images on another piece of treated paper. 【】

问题 2: 询问 **daguerreotype** 与 **calotype** 的共性;

问题 13: 插入语的位置→【】;

英国发明家威廉姆·亨利·塔尔博特(1800-1877)于 1841 年申请了另一种截然不同的照相法的专利。塔尔博特的“卡罗式摄影法”是第一种用负片洗印正片的方法,这种方法是现代照片的直接鼻祖。卡罗式摄影法革命性地使用了化学处理的纸片,纸片上受到光照射的区域的色调会变暗于是产生了负像。这种被塔尔博特称之为“负片”的东西随后会被用于在另一张化学处理的纸片上洗印多张正像。

整段【多选题】

The two processes produced very different results. The daguerreotype was a unique image that reproduced what was in front of the camera lens in minute, unselective detail and could not be **duplicated** . The calotype could be made in series, and was thus the equivalent of an etching or an engraving. **Its general effect** was soft edged and tonal.

问题 3: 询问单词意思 (**duplicated**);

问题 4: 询问指代 **Its general effect** refer to **what?** ;

这两种方法产生了极为不同的结果。达盖尔照相法是复制照相机镜头前端微小的、非选择性的细节得到唯一一张影像，不可以加印。而卡罗式摄影法可以洗出多张照片，因此相当于蚀刻术或雕刻术。其整体的效果是轮廓和色调模糊。

One of the things that most impressed the original audience for photography was the idea of **authenticity** . Nature now seemed able to speak for itself, with a minimum of interference. The title Talbot chose for his book, The Pencil of Nature (the first part of which was published in 1844), reflected this feeling. Artists were fascinated by photography because it offered a way of examining the world in much greater detail. They were also afraid of it, because it seemed likely to make their own efforts unnecessary.

问题 5: 询问单词意思 (**authenticity**); 真实性; genuineness: 真实

摄影术给最初接触它的观众留下的最深刻的印象之一是其真实性。现在大自然可以受到最小的干扰自己表达自己了。塔尔博特为他的书所选的书名《自然的画笔》(该书的第一部分发表于1844年)就体现了这种感触。艺术家沉醉于摄影，因为摄影为他们提供了一种可以更加细致地审视这个世界的方法。他们也很害怕摄影，因为摄影仿佛让他们的努力变得没有必要了。

整段【多选题】

Photography did indeed make certain kinds of painting obsolete-the daguerreotype virtually did away with the portrait miniature. It also made the whole business of making and owning images democratic. Portraiture, once a luxury for the privileged few, was suddenly well within the reach of many more people.

问题 6: 询问作者在这段主要想 **make** 的 **point** 是什么;

照相术的确使某些绘画种类变得过时了，达盖尔照相法几乎把迷你肖像画逼到绝路。它还使得整个制造业和拥有图像的产业变得平民化。肖像这个一度只是少数权贵的奢侈品，突然就变得触手可及了。

整段【多选题】

In the long term, photography's impact on the visual arts was far from simple. **Because the medium was so prolific, in the sense that it was possible to produce a multitude of images very cheaply, it was soon treated as the poor relation of fine art, rather than its destined successor.** Even those artists who were most dependent on photography became **reluctant** to admit that they made use of it, in case this compromised their professional standing.

问题 7: 询问单词意思 (**reluctant**);

问题 8: 等价替换语句 (**Sentences** = which of the CHOICES)

从长远角度看，照相术对视觉艺术的影响远远不是那么简单。因为媒介很多，从这种意义上来说就有可能很廉价地生产一堆影像，因此照相术很快就被当成是艺术品廉价的替代物，而不是注定的继任者。即使是那些对照相术最为依赖的艺术家也不愿意承认他们使用过照相术，害怕这会影响到他们的专业地位。

细节&整段【多选题】

The rapid technical development of photography—the introduction of lighter and simpler equipment, and of new emulsions that coated photographic plates, film, and paper and enabled images to be made at much faster speeds—had some **unanticipated** consequences. Scientific experiments made by photographers such as Eadweard Muybridge (1830-1904) and Etienne-Jules Marey (1830-1904) demonstrated that the movements of both humans and animals differed widely from the way they had been traditionally represented in art. Artists, often reluctantly, were forced to accept the evidence provided by the camera. The new candid photography—unposed pictures that were made when the subjects were unaware that their pictures were being taken—confirmed these scientific results, and at the same time, thanks to the radical cropping (trimming) of images that the camera often imposed, suggested new compositional formats. The **accidental** effects obtained by candid photographers were soon being copied by artists such as the French painter Degas.

问题 9: 询问单词意思 (**unanticipated**);

问题 10: 询问单词意思 (**accidental**);

问题 11: 询问 **benefit**, artist derived from photograph.

问题 12: 询问 **effect**, photography had on painting.

照相技术上的迅速发展——包括使用更轻便简单的仪器，在照相底片、胶卷和相纸上涂以新型感光乳剂以及加快成像速度——产生了一些意想不到的结果。摄影师，例如爱德华德·麦布里奇（1830-1904）及艾蒂安·朱尔·马雷（1830-1904）进行的科学实验证明人类和动物的运动与我们通常在艺术品中表现的有巨大差异。艺术家往往是勉强地被强迫接受相机所提供的证据。新出现的堪的派摄影（即拍摄对象不知情时抓拍的照片）证实了这些科学成果，同时，由于相机对影像进行的彻底裁剪（修剪），这些图像暗示了新的创作版式。堪的派摄影师们获得的这种意外效果很快被一些艺术家比如法国画家德加给学去了。

TPO 22 – 3 The Allende Meteorite
阿伦德陨星

Sometime after midnight on February 8, 1969, a large, bright meteor entered Earth's atmosphere and broke into thousands of pieces, plummeted to the ground, and scattered over an area 50 miles long and 10 miles wide in the state of Chihuahua in Mexico. The first meteorite from this fall was found in the village of Pueblito de Allende. Altogether, roughly two tons of meteorite fragments were recovered, all of which bear the name Allende for the location of the first discovery.

问题 1: 询问单词意思 (location);

问题 2: 询问 infer 关于 a large, bright meteor entered Earth's atmosphere;

在 1969 年 2 月 8 日子夜后的某一时刻，一颗巨大明亮的流星进入地球大气层，碎成无数的碎块，坠落到地面，散布在墨西哥奇瓦瓦州境内 50 英里长 10 英里宽的区域内。在皮柏里托·德·阿伦德村发现了这次坠落的第一块陨石。总共大约找到了 2 吨的陨石碎片，所有的碎片都是以首次发现的所在地阿伦德命名。

最后一句【多选题】

Individual specimens of Allende are covered with a black, glassy crust that formed when their exteriors melted as they were slowed by Earth's atmosphere. When broken open, Allende stones are revealed to contain an assortment of small, distinctive objects, spherical or irregular in shape and embedded in a dark gray matrix (binding material), which were once constituents of the solar nebula—the interstellar cloud of gas and dust out of which our solar system was formed.

问题 3: 等价替换语句 (Sentences = which of the CHOICES)

每块阿伦德碎片样本都覆盖着一层黑色的、玻璃样的熔壳，这层熔壳是在它们的外表面与地球大气层摩擦减速中熔化形成的。把阿伦德陨石破开，发现里面含有各种各样细小的、独特的物体，这些物体呈球状或者不规则状，嵌在深灰色的基质（结合物质）中，它们曾是太阳星云——形成太阳系的由气体和尘埃组成的星际云团的一部分。

整段【多选题】

The Allende meteorite is classified as a chondrite. Chondrites take their name from the Greek word chondros—meaning "seed"—an allusion to their appearance as rocks containing tiny seeds. These seeds are actually chondrules: millimeter-sized melted droplets of silicate material that were cooled into spheres of glass and crystal. A few chondrules contain grains that survived the melting event, so these enigmatic chondrules must have formed when compact masses of nebular dust were fused at high temperatures—approaching 1,700 degrees Celsius—and then cooled before these surviving grains could melt. Study of the textures of chondrules confirms that they cooled rather quickly, in times measured in minutes or hours, so the heating events that formed them must have been localized. It seems very unlikely that large portions of the nebula were heated to such extreme temperatures, and huge nebula areas could not possibly have lost heat so fast. Chondrules must have been melted in small pockets of the nebula that were able to lose heat rapidly. The origin of these

peculiar glassy spheres remains an enigma.

问题 4: 询问单词意思 (**allusion**); 暗示, 暗指

问题 5: 询问单词意思 (**enigmatic**);

问题 6: 询问 **indicate**, **A few chondrules contain grains**; 【选项看清, 有些词汇没说, 不能选】
阿伦德陨石属于球粒陨石。球粒陨石的名字是源于希腊语中的单词“chondros”, 意思是种子, 这是指它们的外观看起来仿佛是镶嵌着细小的种子的岩石。这些种子实际上是陨石球粒: 被冷却成玻璃球和水晶球的硅酸盐物质的毫米大小的熔融液滴。少数陨石球粒含有未遭熔化的颗粒, 所以这些神秘的陨石球粒肯定是在接近 1700 摄氏度的高温下熔化的星云尘埃致密团块中形成的, 随后这些团块在幸存的颗粒尚未熔化之前就冷却了。对陨石球粒质地的研究确认它们的确是以极快的速度冷却的, 短则几分钟, 长则数小时, 所以形成陨石球粒的高温事件肯定是限于局部的。大块星云升到极端高的温度是不大可能的, 而且大块星云不可能散热这么快。陨石球粒肯定是在星云内部能够快速散热的小型袋状结构处被熔化的。这些奇特的玻璃球的来源目前仍是未解之谜。

开始两句【多选题】

Equally perplexing constituents of Allende are the **refractory inclusions**: irregular white masses that tend to be larger than chondrules. 【】They are composed of minerals uncommon on Earth, all rich in calcium, aluminum, and titanium, the most refractory (resistant to melting) of the major elements in the nebula. 【】The same **minerals that occur in refractory inclusions** are believed to be the earliest-formed substances to have condensed out of the solar nebula.

【】However, studies of the textures of inclusions reveal that the order in which the minerals appeared in the inclusions varies from inclusion to inclusion, and often does not match the theoretical condensation sequence for those metals. 【】

问题 7: 询问描述 is true 关于 (**minerals that occur in refractory inclusions**); 【except】

问题 13: 插入语的位置 → 【】:

同样令人困惑的是阿伦德陨星的成分是耐高温的内含物: 比陨石球粒要大些的不规则的白色团块。它们是由地球上罕见的矿物质组成的, 富含钙、铝以及在星云中最耐高温的(耐熔化的)主要元素钛。这些出现在耐高温内含物中相同的矿物质被认为是在太阳星云中最早凝结而成的物质。然而, 对内含物质地的研究发现不同的内含物中矿物质出现的顺序并不相同, 往往与理论上这些金属的凝结序列不一致。

Chondrules and inclusions in Allende are held together by the chondrite matrix, a mixture of fine-grained, mostly silicate minerals that also includes grains of iron metal and iron sulfide. At one time it was thought that these matrix grains might be **pristine** nebular dust, the sort of stuff from which chondrules and inclusions were made. However, **detailed studies of the chondrite matrix** suggest that much of it, too, has been formed by condensation or melting in the nebula, although minute amounts of surviving interstellar dust are mixed with the processed materials.

问题 8: 询问单词意思 (**pristine**); 原始的, 纯朴的;

问题 9: 询问 indicate, (**detailed studies of the chondrite matrix**);

阿伦德陨星里的陨石球粒和内含物是由球粒陨石基质结合到一起的, 这是一种细粒混合物, 主要是包括铁颗粒和硫化铁的硅酸盐矿物。人们一度认为这些基质颗粒可能是原始的星云尘埃,

也就是形成陨石球粒和内含物的物质。 不过对球粒陨石基质的详细研究表明多数基质也是由星云的凝结和熔融形成的， 尽管在这些被处理过的物质中还混有小部分残留的星际尘埃。

整段【多选题】

All these diverse constituents are aggregated together to form chondritic meteorites, like Allende, that have chemical compositions much like that of the Sun. To compare the compositions of a meteorite and the Sun, it is necessary that we use ratios of elements rather than simply the abundances of atoms. After all, **the Sun has many more atoms of any element, say iron, than does a meteorite specimen**, but the ratios of iron to silicon in the two kinds of matter might be comparable. The compositional similarity is striking. The major difference is that Allende is depleted in the most volatile elements, like hydrogen, carbon, oxygen, nitrogen, and the noble gases, relative to the Sun. These are the elements that tend to form gases even at very low temperatures. We might think of chondrites as samples of distilled Sun, a sort of solar sludge from which only gases have been removed. Since practically all the solar system's mass resides in the Sun, **this similarity** in chemistry means that chondrites have average **solar system composition**, except for the most volatile elements; they are truly lumps of nebular matter, probably similar in composition to the matter from which planets were assembled.

问题 10: 询问 why mention this (**the Sun has man...**);

问题 11: 询问 composition 的 difference, between (chondritic meteorites) and (sun);

问题 12: 询问 significance of the similarity;

所有这些各种各样的组分被凝聚到一起形成了球粒陨石，就像与太阳具有很多相似化学组分的阿伦德陨石。 为了比较陨星和太阳的组分， 我们需要比较元素的比率， 而不是简单地比较原子的丰度。 毕竟， 太阳含有的任何一种元素的原子数都要比一块陨石样品含有的多， 但是两者间的铁和硅的比率可能是具有可比性的。 结果发现它们在组成上具有惊人的相似性。 主要的差别是相比太阳， 阿伦德陨石失去了大部分的挥发性元素， 例如氢、 碳、 氧、 氮以及惰性气体。 这些元素即使是在很低的气温下都是气体状态。 我们或许会认为球粒陨石是“蒸馏后的太阳”的样本， 一种除去气体后的太阳沉淀物。 由于太阳系的质量几乎都集中于太阳， 这种相似的化学组成意味着除了大部分的挥发性元素外， 球粒陨石具有正常的太阳系组成； 它们是真正星云物质的团块， 很可能与形成行星的物质具有相似的组成。