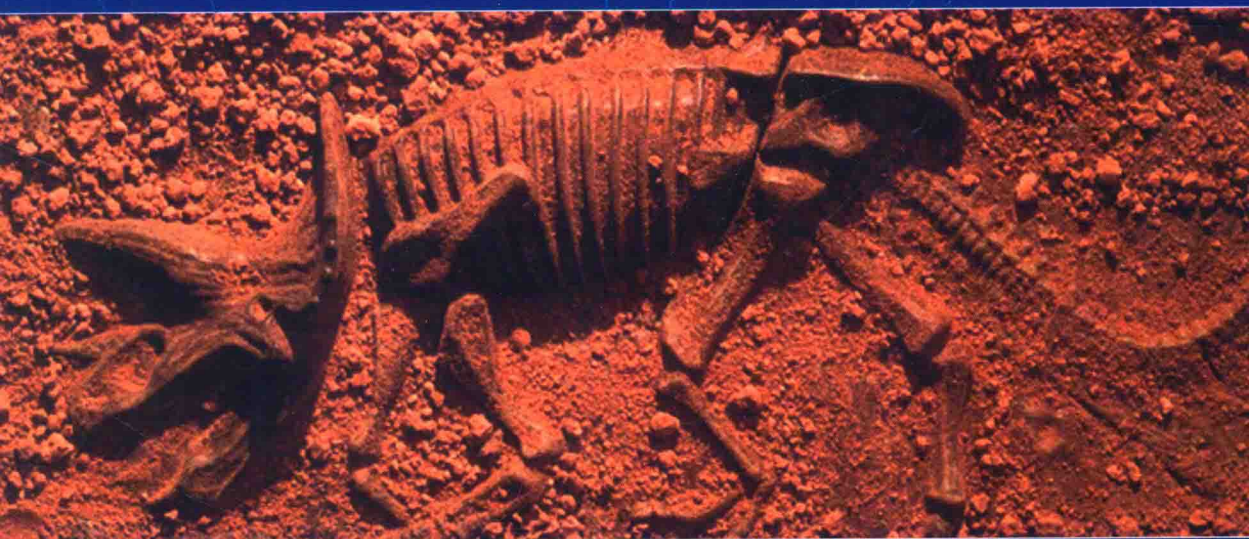


英汉地学专业术语集注系列
丛书主编 董元兴 张红燕

英汉古生物学 专业术语集注

王伟 周艳 李慷 赵妍 编著



WUHAN UNIVERSITY PRESS

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序 言

《英汉地学专业术语集注》以中国地质大学重点培育学科建设项目《基于语料库的跨学科科技英语翻译研究》为依托,由专门从事英汉古生物学、岩石学和矿物学领域的专家精心选择专业术语编撰而成。《英汉地学专业术语集注》词条选择科学,力图涵盖古生物学、岩石学及矿物学主要核心术语。词条配有中英文对照释义、词条来源并辅助学术期刊及专著例子有利于读者全面了解学习该术语词条。词条汉语拼音的标注利于国际学生学习并掌握地学领域专业术语词汇。《英汉地学专业术语集注》主要包括三个分册词典,即《英汉矿物学专业术语集注》、《英汉古生物学专业术语集注》及《英汉岩石学专业术语集注》。

三个分册的内容主要由中英文释义、汉语拼音、词条来源、例子及延伸词条等组成,例如:

Sedimentary

Definition: (Geology) (of rock) that has formed from sediment deposited by water or air.
(地质)(岩石)沉积形成的 (yán shí) chén jī xíng chéng de

Origin: Mid-16th century: from French sédiment or Latin sedimentum “settling”, from sedere “sit”.

Example:

1. The determination of semidentary characteristics of the Yanqi basin in Mesozoic Era and the boundaries of paleobasin is a very important scientific research task for the exploration and development of oil and gas in this region. 焉耆中生代古盆地沉积特征与古盆地边界的确定对于该区域油气勘探与开发是一项非常重要的科研任务。

2. Ordos Basin is the second largest sedimentary basin on land in China that possesses abundant oil and gas resources and has bright prospects in oil and gas exploration. 鄂尔多斯盆地是我国陆上第二大沉积盆地,油气资源非常丰富,油气勘探潜力很大。

Extended Term:

sedimentary-environment 沉积环境

sedimentary-exhalation 沉积喷流

sedimentary-metamorphic 沉积变质

sedimentary-reformation 沉积改造

sedimentary structural evolution 沉积构造演化

sedimentary-structural episode 沉积-构造幕

sedimentary-tectonic 沉积-构造

sedimentary-transformation 沉积-改造

exhalative-sedimentary 喷流-沉积

hydrothermal-sedimentary 热水沉积

tectonic-sedimentary 构造沉积

volcano-sedimentary 火山沉积

2009年10月中国地质大学重点培育学科建设项目《基于语料库的跨学科科技英语翻译研究》获批启动,《英汉地学专业术语集注》于2009年10月开始编撰,2011年10月完成初稿,2014年10月《英汉地学专业术语集注》获得中国地质大学地球生物学基金资助。这里还要说明的是,本书的词条释义,例句的汉语译文并不与原文的专业术语词条和英文例句完全对应,但都是对上述词条与例句的最主要的表述。编写及校订数易其稿,由于经验所限,本书在选词和例句选用等方面难免有不足或错误之处,我们诚恳地希望广大读者提出批评和建议,以利我们进一步改正和修订。

董元兴 张红燕

2016年10月

前 言

作为地质学一门分支学科,古生物学是生命科学和地球科学的交叉科学。该学科既是生命科学中唯一具有历史科学性质的一个独特分支,又是地球科学的一个分支。古生物学是历史生物学的一个重要基础和组成部分,不仅研究生命起源、发展历史、生物宏观进化模型、节奏与作用机制等,而且也研究保存在地层中的生物遗体、遗迹、化石,用以确定地层的顺序、时代,了解地壳发展的历史,推断地质史上水陆分布、气候变迁和沉积矿产形成与分布的规律。因此,古生物研究既具有理论意义,又对地质矿产的开发和应用有重要的实际意义。近些年来,中外地质矿产合作日益紧密,地质学以及古生物学研究日益趋向国际化,地质工作者和学生迫切需要有一本古生物学方面的专业术语英汉工具书,为此我们编写了这本专业术语集注。

《英汉古生物学专业术语集注》根据古生物的学科特点,共分为六个大部分,分别是古生物学总论、古无脊椎动物学、古脊椎动物学、古植物学、古生态学和地球生物学以及地球生物学和分子生物学。词条选择严格参照古生物学专业术语库。在体例上,以英语音标、英语释义、对应汉语名、汉语拼音注音、词源、例句(含汉语译文)和拓展词组为主要组成部分。在词汇释义和例句选择上紧扣专业主题,对部分较为复杂的复合词术语中的单词也进行了单独释义。词源部分除了提供部分术语在该专业领域的缘起,还包含许多普通词汇的由来和演变,有助于广大师生、研究员、从业人员了解该词汇的来龙去脉。本书兼顾专业和语言,融合了英汉科技专业词典和英语语言词典的双重特色。

本书的例句不少来自国内外有关著作和文献,限于体例,未予以注明出处;本词典的编写得到了中国地质大学(武汉)地球科学学院和地球科学学院相关专家的支持和帮助;外语学院赵妍老师的编撰以及2012届研究生许岚、张涵、张馨引、郑红红、辛华等做了大量资料收集整理工作,在此一并表示诚挚的谢意。

这里还要说明的是,本书的专业术语词条释义,例句的汉语译文并不与原文的专业术语词条和英文例句完全对应,但都是对上述词条、例句等的最主要的表述。由于时间和经验所限,本书在选词和例句选用等方面还存在许多不足的地方,我们诚恳地希望广大读者提出批评和建议,以便我们今后做进一步的改正和修订。

作者

2016年10月

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古生物学总论

absolute age [ˈæbsəljʊt eɪdʒ]

Definition: The geologic age of a fossil, or a geologic event or structure expressed in units of time, usually years, also known as actual age. 绝对年龄 jué duì nián líng 化石、岩石等地质体的地质年龄,通常采用同位素测年方法获得,故也称为“同位素年龄”。本名词与“相对时代”相对应。

Example:

The determination of the absolute age of rocks, minerals and fossils, in years before the present, is the basis for the field of geochronology.

对各种岩石、矿物及化石的绝对年龄(距今以前的年数)的测定是地质年代学领域的基础。

adaptive radiation [əˈdæptɪv reɪdɪˈeɪʃən]

Definition: The development of many different forms from an originally homogeneous group of organisms as they fill different ecological niches. 适应性辐射 shì yìng xìng fú shè 指单一世系成员的演化趋异和大规模多样化,并因此而占据了一系列不同的生态位的现象。

Example:

These terms refer to evolution above the species level, including such events as mass extinctions, adaptive radiation, and the major transitions in evolution.

这些术语是指物种以上水平的进化,包括大规模灭绝事件、适应性辐射和进化中的重大转变。

Allen's rule [ˈæləns ru:l]

Definition: Allen's rule is a biological rule posited by Joel Asaph Allen in 1877. It states that endotherms from colder climates usually have shorter limbs (or appendages) than the equivalent animals from warmer climates. 艾伦法则 ài lún fǎ zé 由乔尔·阿萨夫·艾伦于1877年提出的一项生物法则。指生活在寒冷地区的恒温动物,与温暖地区的同种个体或近缘异种相比,其耳、肢、翼、尾等突出的部分显示缩短的倾向,其体表面积减少,有利于保持体温。

allopatric speciation [ˌæləʊˈpætrɪk spɪˈɪʃiːən]

Definition: 异域成种 yì yù chéng zhǒng 发生在两个异地居群中的成种过程,因地理隔离导致两者间生殖隔离机制的形成。与“地理成种”同义,但有人认为,“异域成种”可分为“边域成种”和“隔离分化成种”,后者与“地理成种”同义。

allopatric: (of animals or plants, esp. of related species or populations) occurring in separate non-overlapping geographical areas (尤指相关物种的动物或植物)发生在不同地理区域的 fā shēng zài bù tóng dì lǐ qū yù de

speciation: the formation of new and distinct species in the course of evolution 物种形成 wù zhǒng xíng chéng

Example:

Geographic isolation may facilitate cryptic speciation of marine holoplankton. However, contribution of allopatric speciation is still questionable.

地理隔离有助于海洋终生浮游生物隐种的形成,但异域成种的作用仍值得商榷。

alpha taxonomy [ˈælfə tækˈsɒnəmi]

Definition: Alpha taxonomy (or sometimes simply taxonomy) is the science of finding, describing and categorizing organisms, thus leading to the recognition of proposed taxonomic groups, or taxa (*sing.*: taxon), which may then be named.

α 分类学涉及种级分类单元的识别、鉴定、记述和命名。

alternation of generation

Definition: The alternation of the generations (or alternation of phases) describes the life cycle of plants, fungi and protists. 世代交替 shì dài jiāo tì 指植物、菌类、原生生物的生命周期。

Example:

They show a heteromorphic alternation of generations, the gametophyte being the dominant generation.

苔藓植物具有明显的世代交替现象,配子体在世代交替中占优势。

anachronistic facies [əˌnækrəˈnistɪk, ˈfeɪʃiːz]

Definition: 时错相 shí cuò xiàng 某些沉积相类型,如叠层石和极薄的风暴层等,一般仅限于寒武纪以前的正常浅海环境,但在大灭绝后的残存期,它们往往在正常浅海环境短暂地“复辟”,被称为“时代上错位的相”。

anachronistic: erroneous in date 时代错误的 shí dài cuò wù de

facies: the character of a rock expressed by its formation, composition, and fossil content [地] 相 xiàng

anagenesis [ˌænəˈdʒenɪsɪs]

Definition: Anagenesis, also known as “phyletic change,” is the evolution of species

involving an entire population rather than a branching event, as in cladogenesis. 前进演化 qián jìn yǎn huà 指在单支种级谱系内所发生的演化变化, 无成种作用发生。

analogous organ [ə'næləgəs 'ɔ:gən]

Definition: Organs that have similar functions in different organisms (do not share a common evolutionary origin). 同功器官 tóng gōng qì guān 指外形、功能相似, 但起源、结构不同的器官。

analogy [ə'nælədʒi]

Definition: Equivalence between independent parts; equivalence in biological function between body parts or organs that have appeared independently in different plants and animals. 同功 tóng gōng 不同类群生物的器官虽然来源不同, (如不同的动植物) 却功能相似。

Origin: 15th century. Via French analogie or Latin analogia.

apomorphy, derived characteristic

Definition: A novel evolutionary trait that is unique to a particular species and all its descendants, which can be used as a defining character for a species or group in phylogenetic terms. 衍征 yǎn zhēng 同源特征中出现的相对较晚者, 由祖征派生而来。也译作“近裔性状”, 参见“祖征”。

Extended Term:

derived apomorphy 派生特征, 衍生特征

applied palaeontology [ə'plaid pæliən'tɒlədʒi]

Definition: 应用古生物学 yìng yòng gǔ shēng wù xué 将古生物学不同领域的研究成果应用于其他学科和经济活动领域, 如地球自转速率的变化、大陆漂移和板块构造、区域地质调查、矿产的普查勘探等。

applied: (of a subject or type of study) put to practical use as opposed to being theoretical 应用的 yìng yòng de

palaeontology: the study of fossils (= the remains of animals or plants in rocks) as a guide to the history of life on earth 古生物学; 化石学 gǔ shēng wù xué; huà shí xué

archetype ['ɑ:kitaɪp]

Definition: An original model on which something is patterned. 原型 yuán xíng 指原始的类

型或形体构型,其他类型或形体构型由其演化而来。

Example:

Much like the “Earth Mother” archetype, those of the “Earth and Lava” archetype are very earthy.

就像“地球母亲”原型一样,那些“土与熔岩”的原型是非常质朴的。

assemblage [əˈsɛmblɪdʒ]

Definition: Several fossils grouped together or considered as a whole in specific areas or positions. 组合 zǔ hé 特定地区特定层位中发现的所有化石的联合,不一定具有生态含义。

Origin: Circa 1704, from French assemblage “gathering, assemblage,” from assembler.

Example:

These changes reflect the effects of burial diagenesis on the originally deposited clay mineral assemblage.

这种变化反映了埋藏成岩作用对原来沉积的黏土矿物组合的影响。

Extended Term:

assemblage zone 组合带

rock assemblage 岩石组合

mineral assemblage 矿物共生

ecologic assemblage 生态组合

association [əˌsəʊsiˈeɪʃən]

Definition: A group of organisms (plants and animals) that live together in a certain geographical region and constitute a community with a few dominant species. 群集 qún jí 特定环境下生活在一起的生物联合,暂时不清楚其时空分布范围。

Origin: 1530s, “action of coming together,” from Latin associationem, stem of associare. Meaning “a body of persons with a common purpose” is from 1650s. Meaning “mental connection” is from 1680s; that of “quality or thing called to mind by something else” is from 1810.

autapomorphy [ˈɔːtəpəmɔːfi]

Definition: An autapomorphy is a derived trait that is unique to a given terminal group. That is found only in one member of a clade, but not found in any others or outgroup taxa, not even those most closely related to the group (which may be a species, family or in general any

clade). 独有衍征 dú yǒu yǎn zhēng 只是某一分支所独有的衍征, 参见“共同衍征”。

background extinction [ˈbækgraʊnd ɪkˈstɪŋkʃən]

Definition: Background extinction, also known as “normal extinction”, refers to the extinction in earth’s geological and biological history before humans became a primary contributor to extinctions. 背景灭绝 bèi jǐng miè jué 指地质生物历程中生物由于自身的原因在正常环境状况下的灭绝, 与集群灭绝无关。

Example: Life system is the typical self-organization system, in which there are fluctuations in the diversity and complexity. Huge fluctuation displays eruption and mass extinction of life in biodiversity, while tiny fluctuation displays a normal origin and background extinction. 生命系统是典型的自组织系统, 系统中的多样性和复杂性存在着涨落, 巨涨落在生物多样性上表现为生物的大规模爆发和灭绝, 微涨落则为常规发生和背景灭绝。

Bergmann’s rule

Definition: Bergmann’s rule is an ecogeographic rule that correlates latitude with body mass in animals. 贝格曼法则 bèi gé mǎn fǎ zé 恒温动物在寒冷地区体型趋向于增大, 在温暖地区则趋向于变小, 因为随着个体增大, 相对体表面积变小, 其单位体重的散热量随之变小。

beta taxonomy [ˈbi:tə tækˈsɒnəmi]

Definition: The level of taxonomic study dealing with the arrangement of species into higher taxa. β 分类学 β fēn lèi xué 将物种配置安排到更高的分类阶元, 建立分类系统。

binominal nomenclature [baɪˈnɒmɪnəl ˈnəʊmənkleɪtʃə]

Definition: The scientific naming of species whereby each species receives a Latin or Latinized name of two parts, the first indicating the genus and the second being the specific epithet. 双名法 shuāng míng fǎ 物种的正式名称必须由两个拉丁词构成, 属名在前, 种名在后, 后面还常常附有命名人的姓名。

Example: This is a name that the scientific name of an animal taxon in binominal nomenclature. 这是在双名法中的一个动物分类单元的学名。

biodisturbation [ˌbaɪəʊˌdɪstəːˈbeɪʃn]

Definition: Biodisturbation is a method of tracking where compounds of interest travel in an experimental animal or human subject. 生物扰动 shēng wù rǎo dòng 生物在沉积物中的强烈搅动。

biogenetic law [ˌbaɪəʊdʒiˈnetɪk lɔː]

Definition: Biogenetic law, in biology, a law stating that the earlier stages of embryos of species advanced in the evolutionary process, such as humans, resemble the embryos of ancestral species, such as fish. 生物发生律 shēng wù fā shēng lǜ 亦称重演律, 认为生物个体发育是其在类群系统发育的简单而迅速的重演。注意本名词含义与“重演”不同。

Example:

Height growth of young *Pinus densata* in terraces was dominated by its biogenetic law, whereas at cover sand on slope by environmental factors (mean air temperature in April).

阶地高山松幼林生长主要受自身生物发生律所控制, 山坡覆沙地高山松生长已受环境因子(4月份平均气温)制约。

biomass [ˈbaɪəʊmæs]

Definition: The total mass of living matter in a given unit area. 生物量 shēng wù liàng 在某一特定时间内, 单位面积或体积内所含的生物个体总量, 或其总重量。

Origin: Circa 1980, from bio- + mass.

Example:

That matters because theory suggests that the maximum sustainable yield that can be cropped from fishery comes when the biomass of a target species is about 50% of its original levels.

这点之所以很重要是因为理论指出, 一个渔场若能够获得最高持续产量, 只有当目标物种的生物量是原来水平的 50% 时才能实现。

Extended Term:

stock biomass 资源生物量, 种群生物量, 现有生物量

community biomass 群落生物量(生态)

biomass energy conversion 生物质能转换

biome [ˈbaɪəʊm]

Definition: Major ecological community; a division of the world's vegetation that

corresponds to a defined climate and is characterized by specific types of plants and animals, e. g. tropical rain forest or desert. The world's lakes and oceans may also be considered biomes, although they are less susceptible to climatic influences than terrestrial biomes. 生物群落 *shēng wù qún luò* 一组地理上共生的群落,反映了特定的气候,以及植被和动物特征的生态条件,如热带雨林、沙漠等生态域。

Origin: 1916, from Greek *bios* (see *bio-*) + *-ome*.

Example:

As the edge of the land and wet eco-system, the landscape ecological edge effect of urban waterfront area is manifest, such as complex biome structure and diverse habitat. It's also the most important recreational space of the city.

城市滨水区处在陆地与湿地生态系统的边界,其景观生态边界效应明显,如生物群落结构复杂、生境多样等,但同时也是城市游憩休闲空间的重要载体。

Extended Term:

biome type 生物群落型

minor biome 小生物群落

tundra biome 冻原生物群落

biomineralization [ˈbaɪəʊˌmɪnərəlaɪˈzeɪʃən]

Definition: Mineral formation by organisms; a process in which organisms transform organic matter into mineral matter, e. g. in the formation of bone. 生物矿化作用 *shēng wù kuàng huà zuò yòng* 在生物的控制或诱导影响下,溶液中的离子转变为固相矿物;有的完全受生物的生理活动控制,如骨骼、牙齿和贝壳;有的属诱导型,如微生物岩,因微生物的生命活动引起周围微环境的物理化学条件发生改变而导致矿物的沉淀。

Example:

Biomineralization is to form inorganic mineral structure by biological process.

生物矿化作用就是通过生物途径形成无机矿质结构的过程。

biomineralogy [baɪəʊˌmɪnəˈrælədʒi]

Definition: Biometeorology is the interdisciplinary study of increasing importance as correlations are being drawn between certain types of meteorological conditions and the health of plants, humans, and all other animals. 生物矿物学 *shēng wù kuàng wù xué* 应用矿物学、结晶学和生物化学等原理和方法来研究生物骨骼和硬体的科学。

biostratinomy [baɪəʊ'strætənəmi]

Definition: Biostratinomy is the study of the processes that take place after an organism dies but before its final burial. 生物层积学 shēng wù céng jī xué 主要研究生物自死亡后至埋葬前这一阶段所经受的种种过程。

biota [baɪ'əʊtə]

Definition: All the plant and animal life of a particular region. 生物群 shēng wù qún 生活在一定区域内的所有生物,包括动物和植物。

Example:

It is now clear that habitats and biota do frequently change.
现在已经清楚,生境和生物群确实变化频繁。

Extended Term:

biota tops 侧柏叶
aquatic biota 水生生物
marine biota 海洋生物
terrestrial biota 陆地生物

bioturbation revolution [baɪəʊtə:'beɪʃən revə'lju:ʃən]

Definition: 生物扰动革命 shēng wù rǎo dòng gé mìng 前寒武纪至寒武纪过渡时期底栖动物的生活方式出现重大转变,内栖(底内)动物从无到有,影响逐渐增强。这一转变最初被称为“农艺(agronomic)革命”,后改称为“生物扰动革命”。

bioturbation: In oceanography, limnology, pedology, geomorphology, and archaeology, bioturbation is the displacement and mixing of sediment particles by benthic fauna (animals) or flora (plants). 生物扰动 shēng wù rǎo dòng

revolution: an attempt, by a large number of people, to change the government of a country, especially by violent action. 革命 gé mìng

body fossil ['bɒdi 'fɒsəl]

Definition: A body fossil is what was actual organic material from a creature or plant (like a bone). 实体化石 shí tǐ huà shí 泛指由生物遗体本身保存下来而形成的化石,大多是生物的硬体部分,原有物质成分一般已被替换或填充。

Example:

Apart from the spectacular terrain, the body fossils and trace fossils are considered treasures for

geological studies.

除了瑰丽的地形外,露出地层的生物本体化石和生痕化石是地质研究的财富。

body plan [ˈbɒdi plæn]

Definition: A body plan is essentially the blueprint for the way the body of an organism is laid out. 形体构型 xíng tǐ gòu xíng 来自德文 bauplan,指生物及其骨骼的基本形态结构和造型,后生动物各主要门类在形体构型方面存在显著差异,同源异形框(homeobox,简写为hox)基因在其中起着关键的控制作用。

Cambrian evolutionary fauna [ˈkæmbriən ɪ:vəluːʃənri ˈfəʊnə]

Definition: 寒武纪演化动物群 hán wǔ jì yǎn huà dòng wù qún 显生宙三大演化动物群之一,繁盛于寒武纪,以三叶虫、无铰腕足类、软舌螺等为代表。

Cambrian: the Cambrian period or the system of rocks deposited during it 前寒武纪的 qián hán wǔ jì de

evolutionary: connected with evolution; connected with gradual development and change 进化的 jìn huà de

fauna: all the animals living in an area or in a particular period of history (某地区或某时期的)动物群 dòng wù qún

Cambrian explosion [ˈkæmbriən ɪkˈspləʊʒən]

Definition: The Cambrian explosion or Cambrian radiation was the relatively rapid appearance, over a period of many million years, of most major groups of complex animals around 530 million years ago, as found in the fossil record. 寒武纪生命大爆发 hán wǔ jì shēng mìng dà bào fā 大约在5亿3000万年前,在几百万年期间,绝大多数动物“突然”出现,这一事件在化石群中可见。

Example:

The extreme climate arisen from “snowball Earth” may promote evolution of life and trigger the “Cambrian Explosion”.

“雪球地球”的极端气候环境变化,促进了生命的演化,造成了寒武纪生命大爆发。

Cambrian substrate revolution [ˈkæmbriən ˈsʌbstreɪt revəˈljuːʃən]

Definition: The “Cambrian substrate revolution” or “Agronomic revolution”, evidenced in trace fossils, is the diversification of animal burrowing during the early Cambrian period. 寒武纪

底质革命 hán wǔ jì dǐ zhì gé mìng 海洋底质状态在寒武纪曾发生重大转变,即显生宙型混合基底逐渐取代元古代型微生物席基底,这是垂向生物扰动出现和发展的结果。参见“生物扰动革命”。

cast [kɑ:st]

Definition: Something shed by organism; a part of an organism that has been shed in a natural recurring process, e. g. an insect casing, a snake skin, or worm feces. 铸型 zhù xíng 生物遗体的内外均被沉积物充填,其后遗体本身被地下水溶蚀,所留空隙又为其他物质填充而形成铸型。

Example:

It is discovered by test that micro RE can promote formation of austenite in cast iron with D form graphite, which can strengthen the cast iron matrix.

通过试验研究,发现微量稀土能促进 D 型石墨铸铁中初晶奥氏体骨架的生长,对强化基体组织有一定的作用。

catastrophism [kə'tæstrəfɪzəm]

Definition: Theory of geologic violence; a theory, now discredited, that the geologic features of Earth were formed by a series of sudden violent catastrophes rather than a gradual evolutionary process. A more recent version of this theory holds that the evolutionary process of geologic development has on occasions been supplemented by such catastrophes. 灾变论 zāi biàn lùn 与均变论相对立,认为在地球历史上发生过多大的灾变事件,每经过一次灾变,原有生物被毁灭,新的则被创造出来(特创论)。

Origin: as a geological or biological theory, 1869, coined by Huxley from catastrophe + -ism.

Example:

The most popular alternative to catastrophism is the gradualistic approach.

最著名的灾变论的对立理论就是渐变论。

Extended Term:

theory of catastrophism 激变论

category ['kætigəri]

Definition: A general concept that marks divisions or coordinations in a conceptual scheme category code. 分类码 fēn lèi mǎ 分类阶元 fēn lèi jiē yuán 在级序分类系统中,每个分类单元都被确定为其中某个级别的分类阶元,例如,物种和属都是生物界最基本的分类阶元之一。