大学英语进阶

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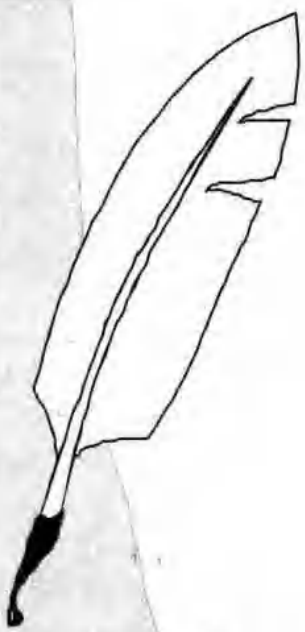
内容提要

本书是大学三年级下半学期集约提高阶段理工类大学生使用的教材。本书共分为12个单元，内容涉及能源、环境保护、计算机科学、太空科学、经济、企业管理、社会科学、生物科学、土木工程、电子和机械工程、交通和通讯等方面。每单元分为4部分：第一部分为对话、问答、讨论、角色扮演等各种形式的口语活动。第二部分的阅读实践包括3篇文章。文章主要选自近几年的英语期刊杂志，体裁多样，有正式的书面语体的科技文章，也有口语体的专家讨论文章。其中第一篇为精读，文后配有理解练习和讨论题目。第二、三篇为泛读，各专业教师和学生可根据各自的特点确定阅读重点。第三部分为各种实用写作技巧的讲解与练习，先给出模仿的例子，再予以点评。第四部分是单元测试，包括词汇和翻译两个练习，以便于学习者巩固本单元的重点词汇和训练各种翻译技巧。



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Unit 1 Sources of Energy

Part One Guided Speaking

Directions

1. *List sources of energy and discuss their uses in our daily life.*
2. *Read the following famous sayings and then share your understanding with your classmates.*
   1) I want to bring out the secrets of nature and apply them for the happiness of man. I don't know of any better service to offer for the short time we are in the world. —*Thomas Edison*
   2) My fellow Americans, ask not what your country can do for you; ask what you can do for your country. My fellow citizens of the world, ask not what America will do for you, but what together we can do for the freedom of man. —*John Kennedy*

Part Two Guided Reading

Passage A

Petroleum

By *Isaac Asimov*

1. Petroleum, like coal, is found in sedimentary rocks, and was probably formed from long-dead living organisms. The rocks in which it is found are almost always of ocean origin and the petroleum-forming organisms must have been ocean creatures rather than trees.

2. Instead of originating in accumulating woody matter, petroleum may be the product of the accumulating fatty matter of ocean organisms such as plankton, the myriads of single-celled creatures that float in the surface layers of the ocean.

3. The fat of living organisms consists of atom combinations that are chiefly made up of

carbon and hydrogen atoms. It does not take much in the way of chemical change to turn that into petroleum. It is only necessary that the organisms settle down into the ooze underlying shallow arms of the ocean under conditions of oxygen shortage. Instead of decomposing and decaying, the fat accumulates, is trapped under further layers of ooze, undergoes minor rearrangements of atoms, and finally is petroleum.

4. Petroleum is lighter than water and, being liquid, tends to ooze upward through the porous rock that covers it. There are regions on Earth where some reaches the surface and the ancients spoke of pitch, bitumen, or asphalt. In ancient and medieval times, such petroleum seepages were more often looked on as medicines rather than as fuels.

5. Of course, the surface seepages are in very minor quantities. Petroleum stores, however, are sometimes overlain with nonporous rock. The petroleum seeping upward reaches that rock and then remains below it in a slowly accumulating pool. If a hole can be drilled through the rock overhead, the petroleum can move up through the hole. Sometimes the pressure on the pool is so great that the petroleum gushes high into the air. The first successful drilling was carried through in 1859 in Titusville, Pennsylvania, by Edwin Drake.

6. If one found the right spot (and prospectors eventually learned to recognize the kind of geologic formations that made it likely for a pool of trapped petroleum to exist underground) then it was easy to bring up the liquid material. It was much easier to do that than to send men underground to chip out chunks of solid coal. Once the petroleum was obtained, it could be moved overland through pipes, rather than in freight trains that had to be laboriously loaded and unloaded, as was the case with coal.

7. The convenience of obtaining and transporting petroleum encouraged its use. The petroleum could be distilled into separate fractions, each made up of molecules of a particular size. The smaller the molecules, the easier it was to evaporate the fraction.

8. Through the latter half of the nineteenth century, the most important fraction of petroleum was "kerosene," made up of middle-sized molecules that did not easily evaporate. Kerosene was used in lamps to give light.

9. Toward the end of the nineteenth century, however, engines were developed which were powered by the explosions of mixtures of air and inflammable vapors within their cylinders. The most convenient inflammable vapor was that derived from "gasoline," a petroleum fraction made up of small molecules and one that therefore vaporized easily.

10. Such "internal combustion engines" are more compact than earlier steam engines and can be made to start at a moment's notice, whereas steam engines require a waiting period while the water reserve warms to the boiling point.

11. As automobiles, trucks, buses, and aircraft of all sorts came into use, each with internal combustion engines, the demand for petroleum zoomed upward. Houses began to he heated by burning fuel oil rather than coal. Ships began to use oil; electricity began to be formed from the energy of burning oil.

12. In 1900, the energy derived from burning petroleum was only 4 percent that of coal. After World War II, the energy derived from burning the various fractions of petroleum exceeded that of coal, and petroleum is now the chief fuel powering the world's technology.

13. The greater convenience of petroleum as compared with coal is, however, balanced by the fact that petroleum exists on Earth in far smaller quantities than coal does. (This is not surprising, since the fatty substances from which petroleum was formed are far less common on Earth than the woody substances from which coal was formed.)

14. The total quantity of petroleum now thought to exist on Earth is about 14 trillion gallons. In weight that is only one-ninth as much as the total existing quantity of coal and, at the present moment, petroleum is being used up much more quickly. At the present rate of use, the world's supply of petroleum may last for only thirty years or so.

15. There is another complication in the fact that petroleum is not nearly so evenly distributed as coal is. The major consumers of energy have enough local coal to keep going but are, however, seriously short of petroleum. The United States has 10 percent of the total petroleum reserves of the world in its own territory, and has heen a major producer for decades. It still is, but its enormous consumption of petroleum products is now making it an oil importer, so that it is increasingly dependent on foreign nations for this vital resource. The Soviet Union has about as much petroleum as the United States, but it uses less, so it can be an exporter.

16. Nearly three-fifths of all known petroleum reserves on Earth is to be found in the territory of the various Arabic-speaking countries. Kuwait, for instance, which is a small nation at the head of the Persian Gulf, with an area only three-fourths that of Massachusetts and a population of about half a million, possesses about one-fifth of all the known petroleum reserves in the world.

17. The political problems this creates are already becoming crucial.

(From *The Beginning and the End*, 1977)

New Words

sedimentary [ˌsediˈmentəri] *a*. 沉积的
long-dead [ˈlɔŋ ˈded] *a*. 长期死亡的,死亡已久的
originate▲[əˈridʒineit] *vt*. 发源,发起
woody [ˈwudi] *a*. 木质的
fatty [ˈfæti] *a*. 脂肪质的,多脂的
plankton [ˈplæŋktən] *n*. 浮游生物
myriad◆[ˈmiriəd] *n*. & *a*. 极大数量(的),无数(的)
single-celled [ˈsiŋgl ˈseld] *a*. 单细胞的
ooze [uːz] *n*. (河底的)软泥,淤泥 *vt*. 渗出,慢慢流出
underlying▲[ˌʌndəˈlaiiŋ] *a*. 在下的
decompose [ˌdiːkəmˈpəuz] *v*. 分解
rearrangement [ˌriːəˈreiŋdʒmənt] *n*. 重新安排,重新排列
porous [ˈpɔːrəs] *a*. 多孔的,有气孔的
bitumen [ˈbitjumin] *n*. 沥青

asphalt ['æsfælt] *n*. 沥青,柏油
medieval▲[medi'i:vəl]*a*. 中世纪的,古老的
seepage ['si:pidʒ] *n*. 渗出,渗漏;油苗
overlie [ˌəuvə'lai] *v*. 覆盖在上面
nonporous [nɔn'pɔ:rəs] *a*. 无孔的
seep [si:p] *vi*. 渗出,渗漏
gush◆[gʌʃ] *v*. 涌出,喷出;滔滔不绝地说
prospector [prəs'pektə] *n*. 勘探人员,探矿者
geologic(al) [dʒiə'lɔdʒik(əl)] *a*. 地质学上的
chunk▲[tʃʌŋk] *n*. 大块,厚片;相当大的部分
overland [əuvə'lænd, ˌəuvə'lænd] *ad*. 陆上;通过陆路;横越大陆地
laboriously [lə'bɔ:riəsli] *ad*. 辛苦地,费力地
distill▲[dis'til] *vt*. 蒸馏,用蒸馏法提取;吸取,提炼
evaporate▲[i'væpəreit] *v*. 蒸发,挥发;消失,不存在
kerosene ['kerəsi:n] *n*. 煤油
cylinder▲['silində] *n*. 圆桶,圆柱体;汽缸
vaporize ['veipəraiz] *v*. 蒸发,汽化
combustion [kəm'bʌstʃən] *n*. 燃烧
compact▲[kəm'pækt] *a*. 紧密的,坚实的;紧凑的,小巧的
zoom◆[zu:m] *v*. (价格、费用等)陡直上升,激增
trillion ['triljən] *num*. (美,法)万亿;(英,德)百万兆
complication▲[ˌkɔmpli'keiʃən] *n*. 复杂(情况)

Expressions

settle down 沉积下来;定居
shallow arms 浅湾
carry through 进行到底,完成
chip out 削出,铲出
internal combustion engine 内燃机
at a moment's notice 一会儿,顷刻
boiling point 沸点
not nearly 远远不,根本不

Proper Nouns

Edwin Drake ['edwin dreik] (人名) 埃德温·德雷克
the Soviet Union [ðə 'səviət 'ju:njən] (国名)(前)苏联
Kuwait [kə'weit] (国名) 科威特
the Persian Gulf [ðə'pə:ʃən 'gʌlf] (地名) 波斯湾
Massachusetts [ˌmæsə'tru:sits] (美国) 马萨诸塞州,麻省

Exercises

Ex.1 *Read the text and then answer the following questions in English briefly.*

1. How is petroleum formed from long-dead living organisms?
2. Where can petroleum be found?
3. Compared with coal, what advantage(s) does petroleum have?
4. Since the end of the 19th century petroleum has been more and more widely used. Please explain the reason(s) for this.

5. Compared with coal, what disadvantages does petroleum have?
6. What problems will be created because of the disadvantages that petroleum has?

Ex.2 *Please go to the library or surf the Internet to get the information or materials on the following topics:*

1. The prospect of petroleum industry
2. What chief fuel powering the world technology will be
3. Other sources of energy

Passage B

Groundwater: The Invisible and Endangered Resource

1. More than half of the water used for drinking, washing and irrigating crops comes from under the ground. This subterranean water is known as groundwater.

2. It is generally taken for granted that the groundwater drawn from wells is omnipresent and will always be available and clean and safe to drink. But experts are reporting that groundwater sources can dry up through overuse, or become contaminated as a result of pollution, poor sanitation or salt water intrusion.

3. This "invisible resource"—as groundwater was described by the United Nations for its 1998 observance of World Day for Water—is slowly emerging in political, economic and personal affairs.

4. With demand growing and supply presenting greater difficulties, groundwater is on the way to becoming a boom business. The World Bank estimates that the developing countries will require investments totaling $ 600 billion to repair and improve water systems. Of the investments that are actually made, a substantial amount will be devoted to extracting and piping groundwater, primarily for agricultural use and secondarily for industry and household consumption. With a trend towards privatization of public services, it can be expected that a growing portion of investments in water will come from the private sector; requirements that governments privatize water utilities are already being written into the terms of multilateral loans. One consequence of growing privatization may be that access to water will not be regarded as a right, but as a function of economic markets.

5. Groundwater, which in its natural state is more protected than surface water, is the preferred source of drinking water for cities. But pressure is being placed on groundwater resources lying close to urban areas by exploding populations, as the portion of the world's people residing in cities balloons from 31 per cent in 1955 to a projected 50 per cent in 2005. And there is also the pressure of pollution. Cities in the industrialized world are spending hundreds of millions of dollars to purchase land lying above groundwater sources and to keep it in a natural state, in order to protect aquifers from contamination. In the developing countries, where urban population growth is outstripping sewage systems, the biggest problem is

untreated human waste.

6. Alongside the problems of public groundwater sources is the increased consumption of privately bottled water, most of which is designated as spring water, i. e. groundwater. Consumption of bottled water in the United States, for instance, has risen from virtually nil in the 1950s to 843 million gallons in 1984 and 2.95 billion gallons in 1997. But drinking bottled water is not just a health fad for the middle classes. In developing countries, water pipes rarely extend to the poorer neighbourhoods, and residents have no choice but to pay high prices for bottled water.

7. Political leaders and analysts are talking more frequently about the possibility that increasing demand for precious groundwater will lead to cross-horder conflicts, even wars. It is not easy to resolve disputes over sovereign groundwater rights, since many aquifers and underground streams cross national borders; and a well drilled vertically within the boundaries of one country may very well be "siphoning" water from the same aquifer, also tapped by a neighbouring nation. Inclined and even horizontal drilling further complicates this issue.

Liquid Gold

8. The Earth is sometimes called "the blue planet", because from outer space it appears mostly as blue ocean. But ocean water is salty, and not easily converted to freshwater. The amount of freshwater available for human use is only a small fraction of the amount of water found in oceans or locked away in polar ice caps. Of this available freshwater, 95 per cent is located underground.

9. Underground water is in motion most of the time, flowing slowly from recharge areas until it discharges into a spring, stream, lake, wetlands or ocean. Groundwater often follows the course of rivers or lies underneath marshes and swamps, keeping rivers from drying up and protecting vegetation when rain is scarce. The upward and downward movement of water through the ground has also a filtering effect, accounting for the generally good quality of groundwater. This means that groundwater is not only better suited for drinking than surface water; it also produces better crop yields.

Triple Threats

10. Surface water and groundwater form an integrated system. But this natural advantage becomes a disadvantage when man made pollution enters the picture. When aquifers are contaminated by polluted surface water that is leaching downward, the damage is difficult, costly and even impossible to correct. By comparison, it is relatively easy to allow rivers and lakes to cleanse themselves during a short-term respite from pollution.

11. Discharges from industries and cities produce intensive, although localized, pollution. A more insidious threat is presented by the less intensive contamination spread over more extensive areas by modern agriculture. Worldwide, increases in food production over the last five decades have been driven by technologies dependent on the use of chemical fertilizers and pesticides. Return flows are gradually increasing the amount of nitrates, trace metals and