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Hard Water and Soft Water

People say that some water is 'hard'. When they say this they mean that it does not lather easily and quickly with soap. The reason for this is that it has in it very small amounts of calcium compound^① from the rocks in the earth through which it has flowed.

People say that rain-water is 'soft', because it lathers easily and quickly with soap, and the reason is that it does not have in it any calcium compound. The water from reservoirs does not usually have much calcium compound in it, but well-water often does, and so people say that it is 'hard'.

When we boil hard water in a pan, a layer of a hard substance, which is called 'fur', is thrown out of the water and left behind on the bottom and sides of the pan. This is made of the limestone which is made when the water is heated, and is thrown out and left behind as the water changes to steam.

词 汇

lather ['lɑ:ðə] *vi.* 起泡沫

lather with 与...起泡沫

calcium ['kælsiəm] *n.* 钙

compound ['kɒmpaund] *n.* 化合物

reservoir ['rezəvwa:] *n.* 水库,

蓄水池

pan [pæn] *n.* 平底锅

substance ['sʌbstəns] *n.* 物质

fur [fə:] *n.* 锅垢, 水锈

limestone ['laɪmstəʊn] *n.* 石灰

石

注 释

- ① it has in it very small amounts of calcium compound: very ... compound 是 has 的宾语。

参考译文

硬水和软水

人们说某些水是‘硬’水。他们这么说的時候是指这种水不容易也不能很快地和肥皂起泡沫。其原因是这种水里含有微量的钙化合物，这是它从地下岩石中流过时带来的。

人们说雨水是‘软’水，因为它很容易并能很快地和肥皂起泡沫。其原因是这种水不含任何钙化合物。通常水库的水钙化合物的含量不高，井水则不然，所以人们称井水为‘硬’水。

当我们用锅煮沸硬水时，一层称做‘水锈’的坚硬物质从水里分离出来，留在锅底和锅壁上。这种水锈是水加热时形成的石灰石构成的；当水转化为蒸汽时，水锈从水里分离并留了下来。

(玉 华)

Why Do Raccoons “Wash” Their Food?

As a matter of fact, raccoons usually don't wash their food. Their fingerlike paws are as nimble and sensitive as human hands. The animals use them to probe and sift a stream bed with what looks like a scrubbing motion.① Once② a raccoon locates a crayfish, snail or mussel, the tidbit is popped directly into its mouth without so much as③ a rub or a rinse. Once a hungry raccoon separates its sup-

per from the sand or gravel, it doesn't waste time on such niceties as sanitation.

词 汇

raccoon [rə'ku:n] *n.* 浣熊
as a matter of fact 事实上, 其实
paw [pɔ:] *n.* 爪子
nimble ['nimbl] *a.* 灵活的, 敏捷的
probe [prəʊb] *vt.* 探查
sift [sift] *vt.* 细查
scrub [skrʌb] *vt.* 擦洗

crayfish ['kreifiʃ] *n.* 小龙虾
mussel ['masl] *n.* 贻贝, 淡菜
tidbit ['tidbit] *n.* 少量吸引人的东西
pop [pɒp] *sth. into sth.* 把某物很快地放在某处
rinse [rins] *n.* 冲洗, 漂洗
sanitation [,sæni'teɪʃən] *n.* 卫生

注 释

- ① with what ...motion: what=that which
- ② Once = As soon as
- ③ without so much as: 甚至都不

参考译文

浣熊为什么“洗”食物?

其实浣熊通常并不洗食物。它们象手指般的爪子和人类的手一样灵巧和敏感。这类动物用爪子探测和搜索小河的河床, 动作看起来象洗刷一样。浣熊一旦找到龙虾、蜗牛或贻贝, 便立即把这点儿美味直接送入口中。根本就不擦拭或洗刷。饥饿的浣熊一旦从沙子或砾石中挑出了晚餐, 从来不在卫生细节上浪费时间。

(徐丽卿)

World Opinions on the Alignment of Planets

Despite predictions that a rare alignment of planets might increase animals' appetites and make humans behave strangely,^① scientists worldwide said doomsday was not imminent and an Indian newspaper suggested readers should go ahead and pay their bills.

Scientists in Tokyo even urged amateur astronomers to sit back, relax and enjoy the space show that won't take place again for nearly 400 years.

On March 10, for the first time since 1803 and the last time until 2357, Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune and Pluto will line up within a 96-degree fan-shaped area on the same side of the sun.

The phenomenon has driven astrologers to a fever pitch of forecasting and led one Indian newspaper to predict disease, riots and even an earthquake.

But scientists around the world recommended against panic.

Professor Yoshihide Kozai, head of Tokyo University's astronomical observatory, said, "The planets' total gravity force will be estimated at about one-third of those of the sun and the moon and can hardly cause any effect on the earth."

The president of the Peruvian Astronomy Association said, "The line-up will produce a minimal increase in gravity which will have insignificant repercussions on our planet."

Two American writers, in their book published in 1974, warned the planetary alignment would cause a major earthquake.

in California, but last month one of the authors retracted his forecast.

However, some people at the Institute of Interplanetary Relations in Peru apparently were refusing to give up on the book's thesis, warning of a possible Caribbean tidal wave and unexpected rains in Peru.

Another Peruvian cosmobiologist predicted humans would behave strangely and animals would want to eat more.

In India, the degree of concern appeared more a factor of the newspaper being read rather than^② what scientists were saying.

The Sunday Herald in New Delhi said, "The positioning of the planets would cause disease, riots, labor unrest and possibly an earthquake."

"A strange epidemic affecting the abdomen will stalk India, and a southern state will create (political) problems," the newspaper said.

But the Rival Times of India said, "Calamities have a way of not happening when you need them the most."

"When seven planets got together in Capricorn in 1962, the end of the world was predicted with glee and gusto," the New Delhi newspaper said, "but the world chose to stay in orbit."

词 汇

alignment [ə'lainmənt] *n.* 排成

一行

predict [pri'dikt] *vt.* 预言

prediction [pri'dikʃən] *n.*

appetite ['æpitait] *n.* 食欲

scientists worldwide = scientists
in all parts of the world

doomsday ['du:msdei] *n.* 世界
末日

imminent ['iminənt] *a.* 逼近的

pay their bills 原意为“付账”，

此处指进行日常活动

amateur ['æmətə:] *n.* 爱好者，

业余从事者

astrologer [əs'trɒlədʒə] *n.* 占星

术家

fever pitch 狂热，高度兴奋

riot ['raɪət] *n.* 暴乱

recommend against 劝人不要...

panic ['pænik] *n.* 惊慌

repercussion [ˌrɪ:pə'kʌʃən] *n.* 影

响，反响

retract [rɪ'trækt] *vt.* 收回

thesis ['θi:sɪs] *n.* 论点 theses

['θi:sɪz] (复数)

tidal wave 海啸

cosmobiologist [ˌkɒzməbaɪ'ɒlədʒ-

ist] *n.* 宇宙生物学家

epidemic [ˌepɪ'demɪk] *n.* 流行病

abdomen ['æbdəmən, æb'dəu-

mən] *n.* 腹部

stalk [stɔ:k] *vt.* 追踪，悄悄地移

动

calamity [kə'læmɪti] *n.* 灾难

have a way of 倾向于，往往是

Capricorn ['kæprɪkɔ:n] *n.* 摩羯

星座

glee [gli:] *n.* 兴高采烈

gusto ['gastəu] *n.* 兴致勃勃

注 释

- ① that a rare alignment ... behave strangely: 是 predictions 的同位语从句。
- ② appeared more ... rather than ... : 看来主要是...而不是....

参考译文

世界各地对九星会聚的看法*

尽管有人预言，罕见的九星会聚可能会使动物的食欲大增并使人类表现反常，但世界各地的科学家认为，世界末日并非即将来临，而一家印度报纸还建议读者要一切如常，该干什么还干什么。

东京的科学家甚至劝告业余天文爱好者们宽心地坐下来欣赏这大约四百年内不会再现的太空奇观。

* 本文取自 1982 年 3 月 10 日九星会聚之前发表的一篇报道，反映当时人们对九星会聚的各种看法。——编者注

三月十日,水星、金星、地球、火星、木星、土星、天王星、海王星、冥王星将在太阳的同一侧96度的扇形区域内排列起来,这是自1803年以来的第一次,也是2357年以前的最后一次。

这一现象驱使星相家们狂热地预卜吉凶,还使一家印度报纸预言要发生疾病、暴乱、甚至地震。

但世界各地的科学家劝大家不必惊慌。

东京大学天文台台长吉秀古在教授说,据估计这些行星的全部引力大约是太阳和月球引力的三分之一,几乎不可能对地球产生任何影响。

秘鲁天文学协会主席说,“九星聚会只会使引力稍有增加,这在我们地球上引起的反响是微不足道的。”

两位美国作家在他们1974年出版的书中曾警告说九星会聚会在加利福尼亚州引起一场大地震。但上个月其中的一位作者收回了他的预言。

不过,秘鲁星际关系研究所有一些人显然还不肯放弃该书的论点,他们警告说加勒比海可能有一次海啸,秘鲁会有意外的大雨。

另一位秘鲁宇宙生物学家则预言人类会表现异常,动物可能食量增大。

在印度,人们所表现的忧虑似乎主要是由于所读的报纸造成的,而不是因为科学家的意见引起的。

新德里星期日信使报说,“九星会聚会引起疾病、暴乱、劳工骚动,还可能引起一场地震。”

该报还说,“一种侵害腹部的奇怪的流行病将在印度蔓延,南方的一个邦会发生政治纠葛。”

但是印度竞争者时报说,“灾难往往在你最需要的时候却偏偏不发生。”

这家新德里报纸说,“1962年当七个行星在摩羯座会聚的时候,人们曾兴高采烈和过份热情地预言世界末日要到来,然而地球却偏偏不离开轨道。”

(林 棣)

Nicotine's^① Effects on the Body

When a cigarette smoker inhales, about 25 percent of the nicotine in the smoke reaches the brain within six seconds — more than twice as fast as mainlining heroin.^② A pack-a-day smoker gets between 50,000 and 70,000 such nicotine jolts a year. No other drug-taking habit comes near that number of fixes.

Nicotine causes the heart to beat faster — much faster. Blood vessels constrict; blood pressure rises. Pulse rate increases. Free fatty acids pour into the blood. These effects, combined with the stress caused by carbon monoxide in cigarette smoke,^③ are thought to cause 120,000 excess heart-attack deaths a year among U.S. smokers.

At first, the impact of nicotine sharpens thinking (both people and animals perform memory and learning tasks better after a jolt), but soon the smoker feels tired and let down; heart rate slows, blood pressure drops, the mind loses its keen edge.

The drug has other contradictory effects. Hitting the brain first, it galvanizes nerves connections, then blocks them; evokes the discharge of adrenalin and similar catecholamines, then shuts them down. It stimulates nerves in muscles, but this very quickly gives way to a kind of paralysis. In small doses, nicotine causes tremors; in large doses, convulsions.^④ Small doses stimulate breathing; large ones have the opposite effect.

Nicotine excites the vomiting reflex both in the brain and in stomach nerves. It has an anti-diuretic effect, but in the intestines, it is initially stimulating, explaining why so many smokers depend on the first smoke of the day for bowel regularity. Later doses, however, slow down the entire digestive process. Nicotine at first increases the flow of saliva in the mouth, mucus in the bronchial tubes; the effects are reversed with later doses.

词 汇

jolt [dʒəʊlt] *n.* 少量速效提神剂

drug taking habit 吸毒癖

fix [fiks] *n.* 一次毒品注射

stress *n.* 改变生理平衡而使得身心紧张的因素

impact ['impækt] *n.* 效果, 影响

let down 松劲, 懈怠

galvanize ['gælvənaɪz] *v.* 使兴奋

adrenalin [ə'drenəlɪn] *n.* 肾上腺素

catecholamine ['kætɪtʃəʊ'læmi:n] *n.* 儿茶酚胺; 苯邻二酚胺

give way to 让位于

paralysis [pə'ræləsɪs] *n.* 瘫痪, 麻痹

convulsion [kən'vʌljən] *n.* (常用复数) 痉挛

vomiting reflex ['vɒmɪtɪŋ 'rɪ:fl-eks] 呕吐反射

anti-diuretic ['æntɪ-daijʊə'retɪk] *a.* 抗利尿的, 抑尿的

bowel ['bauəl] *n.* 大便

saliva [sə'laɪvə] *n.* 唾液

mucus ['mju:kəs] *n.* 粘液

bronchial ['brɒŋkjəl] *a.* 支气管的

注 释

① **Nicotine** [ni'kəʊtɪ:n] *n.* 烟碱, 尼古丁。约在 1560 年法国人 Jean Nicot 用烟草治疗病痛, nicotine 就取自他的名字。

② **mainlining heroin** [meɪn'lainɪŋ 'herəʊɪn]: 注射海洛英。

③ **combined with the stress caused by carbon monoxide**: = which are combined with ... 作非限制性定语修饰 effects, caused by carbon monoxide 是过去分词短语作定语, 修饰 stress.

- ④ convulsions: 省略句, 补全可以是 nicotine causes convulsions.

参考译文

尼古丁对身体的影响

吸烟的人每吸一口烟, 烟中大约 25% 的尼古丁在六秒钟内就到达大脑, 速度相当于注射海洛英的两倍以上。每天抽一包烟的人, 每年吸进的尼古丁是一口烟中的 5 万到 7 万倍, 其他任何吸毒习惯都达不到这个剂量。

尼古丁使心跳加快(快得很多), 血管收缩, 血压升高, 脉搏加速并使游离的脂肪酸大量进入血液。人们认为上述作用加上烟雾中一氧化碳所引起的身心失常, 使美国吸烟者每年因心脏病而多死十二万人。

一开始, 尼古丁的力量能使思维敏捷(人畜在服了一点儿尼古丁以后, 会记得更牢, 学得更快), 但是, 不久吸烟者就会感到疲劳、懈怠、心率减缓、血压下降、思维迟钝。

这种麻醉剂还有其他相互矛盾的作用。它首先冲击大脑, 激发神经之间的联系, 接着就阻断它们; 它引起肾上腺素和与之类似的儿茶酚胺的排出, 然后, 又使之停滞。它能刺激肌肉神经, 但不久麻痹就接踵而来。小剂量的尼古丁会引起颤抖, 大剂量则引起痉挛; 小剂量使呼吸加快, 大剂量则起相反作用。

尼古丁会激起大脑和胃神经的呕吐反射。它有抑尿作用, 但是在肠道里, 它起初能加速肠子的蠕动, 这说明了为什么有这么多人总是靠一天的第一支烟才能按时大便。但是以后抽的烟却使整个消化过程减缓下来。尼古丁起先能增加口腔内唾液及支气管内粘液的分泌; 但剂量继续增加, 便引起相反作用。

(邹品珍)

New Uses for Fly Ash

In an age when waste today means a lack tomorrow, making use of every available resource becomes more and more important. As coal is being used in greater and greater amounts to produce electricity, larger amounts of ash, a by-product of coal, are produced.

When coal is burned in a boiler, two kinds of ash by-product are produced: a heavy bottom ash and a fine-as-powder fly ash that is filtered and captured by precipitators. About 10 to 15 percent of the coal by-product is bottom ash which is used like sand on icy streets and highways and also on highways as paving material.

It is the fly ash, however, that is receiving the greater amount of attention.^① Once considered a waste, fly ash^② is now classified as a natural resource in the U.S. by the state of Maryland. In accordance with state and federal environmental restrictions, fly ash is placed in controlled landfills, where it is compacted and covered with soil. The seeds of various grasses and plants are then placed in the soil to make the land productive and to provide permanent storage.

Fly ash may be used as an additive to concrete in the construction of dams, bricks, and roads, and can replace up to 20 percent of the cement used in concrete. As a by-product of burned coal, fly ash requires no additional expenditure of energy to be produced, where^③ cement production requires great amounts of energy.

Using fly ash in building materials is not a new idea. The Romans used a natural form of fly ash from volcanoes to build their roads and aqueducts, many of which are still standing.④

In addition to using fly ash as a concrete additive, the technology is available to extract the main mineral components — alumina, silica, and magnetites. Today, extracting these components is a very expensive process, but the time may come when it is cheaper to extract these products from ash than to mine new supplies.⑤

词 汇

fly ash 飞灰, 飘尘, 从烟囱中随

气流飞出的固体燃料的灰烬

filter ['filtə] *n.* 过滤器 *vt.* 过滤

precipitator [pri'sipiteitə] *n.* 沉

淀器, 除尘器

pave *vt.* 铺路

be classified as 归类为

federal ['fedərəl] *a.* 联邦的

restriction [ris'trikʃən] *n.* 限制

landfill *n.* 垃圾处理场

compact [kəm'pækt] *vt.* (挤压)

使密实

additive ['æditiv] *n.* 添加剂

concrete ['kɒkri:t] *n.* 混凝土

cement [si'ment] *n.* 水泥

expenditure [iks'penditʃə] *n.* 支

出, 花费

Roman ['rəʊmən] *n.* 古罗马人

volcano [vɒl'keɪnəʊ] *n.* 火山

aqueduct ['ækwidʌkt] *n.* 渡槽,

引水道

alumina [ə'lju:mɪnə] *n.* 铝矾土

silica ['silikə] *n.* 硅石

注 释

- ① It is the fly ash, ... of attention. 是由 it 引起的强调句, 强调 the fly ash. 平叙应为 The fly ash is receiving the greater amount of attention.
- ② Once considered a waste, fly ash ... = Fly ash was once considered a waste, but it is now ...
- ③ where = whereas, 表示“而...”。

- ④ many of which are still standing = many of the roads and aqueducts are still there today.
- ⑤ when it is cheaper ... new supplies: 是定语从句, 修饰 the time, 表示“...比...便宜的日子会到来”。由于谓语部分较短, 将定语从句放其后使句子平衡。

参考译文

飞灰的新用途

在一个今天浪费就意味着明天匮乏的时代, 利用各种可能得到的资源是愈来愈重要了。由于愈来愈多的煤被用来发电, 煤的副产品煤灰也就更多了。

煤在锅炉里燃烧时, 产生两种灰状副产品: 一种是粗重的底灰, 另一种是细如粉末的飞灰, 这种飞灰由除尘器过滤和收集起来。煤的副产品中大约有百分之十至十五是底灰, 经常当作砂子铺在结冰的街道和公路上, 也可用在公路上作铺路材料。

然而, 当前更受重视的是飞灰。飞灰一度曾被视为废物, 现在被马里兰州划为美国的一种自然资源。根据州和联邦政府的环境限制规定, 飞灰要倒在有人管理的垃圾处理场上压实并盖上土壤。然后在土壤内播上各种草和植物的种子, 使土地能生长东西并把这些灰永远贮存起来。

在筑堤、制砖和修路时, 飞灰可以用作混凝土的添加剂, 能够取代混凝土中所用水泥的将近百分之二十。作为燃煤的副产品, 飞灰不用额外消耗能量就可得到, 而生产水泥则需要消耗巨大的能量。

在建筑材料中使用飞灰并不是什么新主意。罗马人曾用火山喷出的天然形态的飞灰来建筑道路和引水管道, 其中许多至今还在。

除了用飞灰作混凝土添加剂以外, 技术上已经能够提取其主要矿物成分——铝矾土, 硅石以及磁性材料。目前, 提取这些成分的方法花钱很多, 但是, 终有一天, 从飞灰中提取这些产品会比开采新资源便宜。

(狄 树)

Plants and the Weather

In the very cold parts of the world no land plants grow. In the very hot parts of the world a few plants can live if there is some water. Places where no plants or only a few plants grow are called deserts. There are cold deserts as well as hot deserts.

In the hot deserts any rain that falls is quickly evaporated by the warm sunshine. Many of these deserts are sandy and the water that enters the soil passes between the sand particles quickly. This water soon passes out of the reach^① of plant roots. Some plants, such as the cactus, can live in these deserts because they can store water in their thick stems. In many cactus plants the leaves have changed to spines to protect the stems from being eaten by animals. The spiny leaves cannot be used for making the plant's food, so the stems, which are usually green, do this^② instead. In the polar regions it is very cold. It is also very cold at the top of high mountains, where there is often snow and ice, even when the sun is shining. Snow and ice are both forms of frozen water, but plant roots cannot absorb solid water. These very cold places are also deserts, because there is no water that the plants can use.

Many plants can grow in very hot, wet places such as jungles because they are able to replace quickly the water they lose in the heat. Very few plants can live in the dark. They must have sunlight to make their food. The floors of