

科技英語注釋讀物①

Outlook: Science at Work

科學與生活

John Parry 原著

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文橋編輯部譯注

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I. Town and country

There was a time when everybody lived in the country.^① At that time everybody was a farmer, growing his own food^②—everybody, that is, except the few men who were strong enough to make others grow their food for them and the people who specialized in certain types of work.^③ Later, there were more specialists: shoemakers made shoes, tailors made clothes, merchants bought and sold, and men began to find it convenient to live together in towns, where they could trade with each other.^④ Farmers brought their food to the towns and traded it for the goods made by the specialist workers.

At first, towns were fairly small, but some of them became important trading centres and so became bigger. Even so, in 1800 there were probably only fifty towns in the whole world with a population bigger than 100,000 people. With the Industrial Revolution, big new manufacturing centres developed and the number of people living in towns increased. There are now

① **There was a time when ... country:** when 是關係副詞，引出定語從句說明 time. ② **... growing his own food:** 現在分詞詞組作狀語，表示附加的動作. ③ **everybody, that is, except the few men who ... to make others grow ...:** everybody 是對前面 everybody 的進一步說明。make 後省略了 to 的不定式 grow, grow 作 others 的賓補。who were ..., who specialized ... 系兩個定語從句，分別修飾前面的名詞 men 和 people. ④ **... men began to find it convenient to live in towns, where ...:** it 用作 find 的形式賓語以代表後面的實際賓語 to live. where 後引出一個非限定性的定語從句，修飾前面的名詞 towns.

more than nine hundred towns with populations bigger than 100,000 people, and some of these are very large indeed, with populations of more than 5,000,000 people. In many countries there are now considerably more people living in towns than in the countryside.

Towns are still growing as the population increases. And the world's population is now growing very fast indeed. The number of people in the world now is approximately 3500 million and, at the present rate of growth, this will increase to 7000 million in the next thirty years. In industrial countries, towns will continue to grow. More land^① will be used for houses and factories. Some people foresee a time when the whole of Britain is one great sprawling city.^②

1. A CITY AT SEA

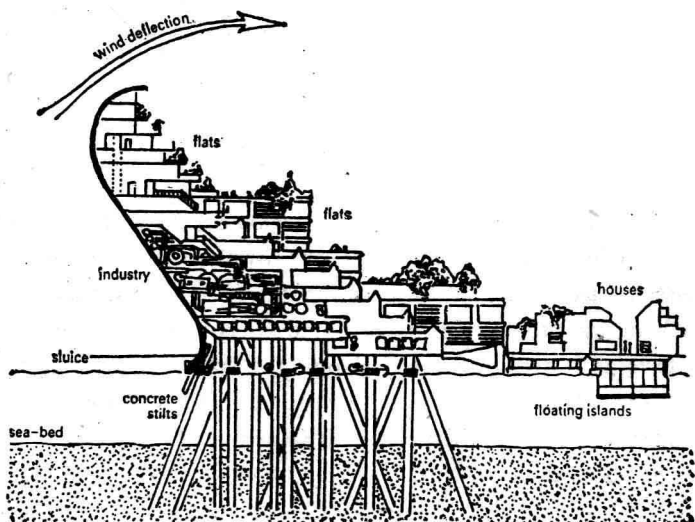
One answer to the question of land shortage was suggested in 1968 by the Pilkington Glass Age Development Committee. The committee put forward^③ detailed plans for a complete city, housing 30,000 people, to be built at sea.^④ They made a model to show what the city would look like.^⑤

The suggestion was to shape the city like a harbour.^⑥ The outer wall of the harbour would stand on concrete stilts rest-

① more land: 較多的土地。land 作“土地”、“陸地”解時，不用複數。

② Some people foresee a time when ... city: when 引出定語從句，說明 time。③ put forward: 提出。④ ...,housing 30,000 people,to be built at sea: 分詞短語 housing ... 及不定式(被動態)短語 to be built... 均作 city 的定語。⑤ ... to show what the city would look like: 疑問代詞 what 在 to show 後的賓語從句中與 like 一起作 would look 的表語。⑥ like a harbour: like 是前置詞，這個短語修飾 city。

ing on the sea-bed. Naturally this could only be where the water was fairly shallow.^① The people would live in flats in the fifty-metre high outer wall. The flats would all face inwards,^② and would be made of concrete and glass. The glass would be specially made and coloured to control the heat and glare from the sun.



The water inside this man-made harbour^③ — the planners called this water the lagoon^④ — would be calm. On it would be floating islands carrying more buildings: a hospital, two the-

① ... where the water was fairly shallow: where ... 作 could be 的表語從句。 ② face inwards: 朝裏, 向內, 面向裏。face 是動詞。 ③ ... inside this man-made harbour: 人造港口內部。inside ... 是前置詞短語作 water 的定語。 ④ lagoon [lə'gu:n]: 鹹水湖。

res, a museum, an art gallery and a church.^① On one of the lands would be a desalination plant, to take the salt out of sea water and turn it into fresh water.^②

People living in the city could move around the lagoon on small boats driven by electricity, so there would be no petrol or diesel-oil fumes.^③ There would be jetties^④ outside the main wall for ships bringing supplies. People could also travel to the mainland by hovercraft^⑤ or helicopter.

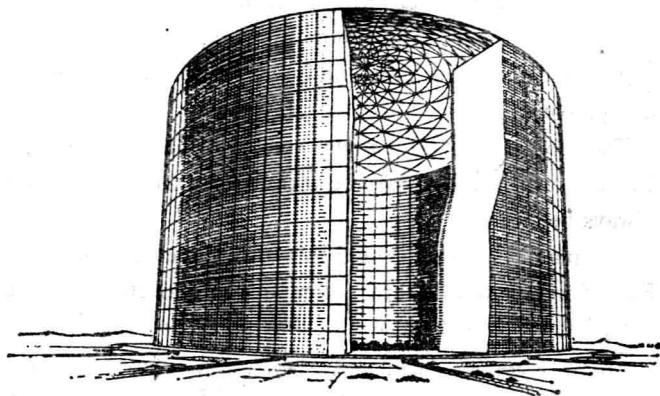
2. LIVING UNDER COVER

We do not usually think of the cold regions of the Arctic Circle as suitable places for building new towns.^⑥ But in Soviet Russia, scientists at the Institute for Northern Architecture are studying the problems of living in the far north. How can architects and town planners overcome the problems of living in a region where night lasts for several months, and where the temperature may be between -40°C and -50°C ?^⑦

Their answer is to build a town under cover, so that the

① On it would be floating islands carrying more buildings: a hospital, ... and a church: 這是一個倒裝句, 正常的語序是: Floating islands would be on it, carrying more building 為分詞短語作定語修飾 islands, a hospital ... 等作 building 的同位語。② On one of the islands would be a desalination plant, to take the salt out of sea water...: 這是一個倒裝句, 主語是 a desalination plant, 謂語是 would be + 前置詞短語。不定式 to take ... 作狀語。③ petrol or diesel-oil fumes: 汽油或柴油氣息。④ jetty: 碼頭、防波堤。⑤ hovercraft: 氣墊船。⑥ ... as suitable place or building new towns: as suitable place 為 cold regions 的賓語補足語。前置詞短語 for building ... 作 place 的定語。⑦ ... where night lasts ..., and where ... -50°C ? 用關係副詞 where 引出的兩個定語從句, 說明前面 region,

people living there need never go outside into the cold.① One idea suggested by the Institute for Northern Architecture is to cover all paths and roads between buildings.② A town based on this idea would look like any ordinary town,③ except that people would move from one building to another along heated, covered passages. For a walk “out of doors”,④ they would go to a park in the centre of the town: it would look like any park in a temperate climate, with the usual trees, grass and flowers, but it would be protected from the arctic weather because it would be covered completely by a large dome.⑤



① ... need never go outside into the cold: 不需要到寒冷的外面去了。主語是 people. ② One idea suggested by the Institute ... is to cover ... buildings: 分詞短語 suggested by ... 作 idea 的定語。謂語是 is to cover. ③ A town based on ... would look like any ordinary town, ...: 分詞短語 based on this idea 是 town 的定語。前置詞短語 like any ordinary town 作 would look 的表語。④ “out of door”: 戶外。out of 表示“在...外”之意。(例: Our school is out of town. 我們的學校在城外。) ⑤ ... it would be protected ... it would be covered ...: 此處的 it 都是指前面提到的 park. 謂語是被動語態, 用情態詞 would 表示推測可能發生的事情。

Another idea is to build blocks of flats in a circle, so that they form an outside wall for the dome which covers the whole of the centre. The centre would have an artificial climate, controlled by infra-red rays, in which temperate trees and plants could grow.^①

3. AN INDOOR TOWN

Winter in Upper Minnesota^② is hard. Slowly people are moving away from this region and settling in parts of the United States where the climate is more pleasant.^③ There is, however, a plan which should make life in Upper Minnesota much more acceptable.^④

The idea is to build a town which will have its own climate. In this town it will always be pleasantly warm, and the air will always be clean.

The planners want to build this town under a series of domes. Each dome would be three kilometres in diameter, and one and a half kilometres high.^⑤ In 1967, they estimated that these

① The centre would have ... controlled by infra-red rays, in which ... could grow: 這兒的 would 表示按照某種計劃設想, 可譯成“會有”“可有”。分詞短語 controlled ... rays 為 climate 的定語, 後又帶出一個定語從句 in which ..., in which 在定語從句中作狀語, 這兒也可改用 where. ② Upper Minnesota: 明尼蘇達的北部(美國)。③ Slowly people are moving away ... where the climate is more pleasant: people 後面的謂語用複數。where ... 為限制性的定語從句說明 parts. ④ There is, however, a plan which should make life in Upper Minnesota much more acceptable: however 作插入語。定語從句中的 which 作從句中的主語, 形容詞 acceptable 作 life 的賓語補足語。(例: The news makes us happy.) ⑤ Each dome would be three kilometres in diameter, and one and a half kilometres high: would be 與 three kilometres 組成是表謂語, in diameter 作狀語。one and a half kilometres 作 high 的狀語。(一般說, 用來表示距離、重量、長度、價格等的名詞可起狀語作用), high 為 would be 的另一個表語。

domes would cost about \$80 million each to build.^① In winter the streets under the dome would be free from^② snow. Snow clearance is an expensive item in Minnesota, and it was estimated that the money saved on snow clearance would pay for the domes after ten years.^③ A town housing about a quarter of a million people would need six domes.^④

There would be no private cars inside the domes.^⑤ Instead, people would travel by means of^⑥ small electric vehicles running on tracks. The tracks would be laid^⑦ along every road. A man would get into a vehicle, drive to his destination, and then leave the vehicle for someone else to use. There would be no parking problems.^⑧

4. MOVING ABOUT TOWNS

Engineers are studying new methods of transport, such as the electric cars of the Minnesota plan,^⑨ for today's towns and cities, as well as^⑩ for the new towns of the future. Everyone knows the problem. Each year there are more cars on the road. Walking through a city now is a matter of squeezing between

① ... they estimated that these domes would cost about \$80 million each to build: that ... 為賓語從句。each 為副詞，意為每個。② free from: 無...的。③ ... it was estimated that the money ... after ten years: it 為形式主語; that ... ten years 為主語從句。④ A town housing about a quarter of a million people ...: housing 是動詞 house 的分詞，這兒可譯成“能容納”，作 town 的定語。⑤ There would be no private cars inside the domes: 這是一個 there be 的句型，主語為 no private cars。⑥ by means of: 藉助於，以，用。⑦ laid: 為 lay 的過去分詞，意思是“停放”，“放”。⑧ no parking problems: 為句中主語，譯成“無停車問題。”⑨ such as the electric cars ...: 作 new methods 的同位語。⑩ as well as: 和，也。

parked vehicles at the side of the road — often on the pavement itself in some countries — and risking death at every crossing.^①

In the centres of most cities, drivers may park their cars only at certain places on the street (often with parking meters controlling how long each car may be left)^② or in off-street^③ car parks. Parking restrictions help to keep the streets clear for moving traffic,^④ and they also stop^⑤ many people from bringing their cars into city centres. When parking restrictions are made, it is also necessary to improve public transport,^⑥ although in many towns it is hard to see any sign that such an improvement is taking place.^⑦ However, in London a new underground line, the Victoria Line, has already been built^⑧ to extend the underground railway system. In Germany the expansion is still greater. New underground systems are being built^⑨ in Cologne and Munich, and the present systems in Berlin and Hamburg^⑩ are being extended: altogether, twelve German towns are im-

① Walking through a city now is a matter of squeezing between ... and risking death at every crossing: 動名詞 walking 為句中主語, a matter of 譯成“...的問題”, risking 與 squeezing 為同等成分, 作前置詞 of 的賓語。② often with parking meters controlling how long each car may be left: how long ... left 為分詞 controlling 引出的賓語從句。③ off-street: 不靠街。作 car park 的定語。④ ... keep the streets clear for moving traffic: clear 作 street 的賓補, clear 在這裏意為“無障礙的”, “安全的”。⑤ stop: 止住, 制止。⑥ ... it is also necessary to improve public transport, ...: 不定式短語 to improve ... 為句中實際主語。⑦ ... it is hard to see any sign that ... is taking place: 不定式短語, to see any sign 作實際主語, that ... place 為同位語從句, 說明 any sign。⑧ ..., the Victoria Line, has already been built ...: Victoria [vik tɒrɪs] 為 1837—1901 年在位的英國女皇名, the Victoria line 作前面 a new underground line 的同位語, 它的謂語是被動語態的現在完成時態。⑨ ... are being built: 是被動語態的現在進行時態。⑩ Cologne: [kə'loun] 科隆 (德國萊茵河傍的一個城市)。Munich: ['mju:nɪk] 慕尼黑 (德國巴伐利亞州的首府)。Berlin: [bə:'lɪn] 柏林。Hamburg: [hæmbə:ɡ] 漢堡。

proving their underground systems.

At the same time, the system of roads in cities is being changed. Roads are no longer^① on one level only, but cross each other by means of flyovers^② and go under buildings by means of tunnels. What of the buses that move along these roads?^③ In most countries they still have both a driver and a conductor. But the need for the conductor is slowly disappearing and in the latest one-man London buses^④ passengers pay their fares to a machine which controls the entrance.

Will the need for the driver also disappear in time?^⑤ Shall we see buses which "lock on"^⑥ to an automatic guidance system under the road? Perhaps the need to improve public transport in modern cities will help to make this possible^⑦ in the not-too-distant future.

5. TRANSPORT FOR TOMORROW

One thing is certain about the public transport of the future: it must be much more efficient than it is today.^⑧ The time is coming when it will be quicker to fly across the Atlantic to New York than (for the London office worker, at least) to travel from

① no longer: 不再。② flyover: 天橋, 立體公路。③ What of the buses that move along these roads? What of 是慣用語, of 相當於 about. (例: What of it? 那又怎麼樣呢?) ④ the latest one-man London buses: 最新的倫敦只有駕駛員的公共汽車。⑤ in time: 總有一天, 最後, 終於。⑥ "lock on": 聯到。⑦ ... to make this possible ...: this 為 make 的賓語, 指的這一段中第一句及第二句疑問句所提出的問題, 可譯成"上述"。possible 為形容詞作 make this 的賓補。⑧ it must be much more efficient than it is today: more efficient 是形容詞比較級作 must be 的表語, 連詞 than 帶出一個比較狀語從句。

home to the office.^① The two main problems are: what vehicle shall we use and how can we plan our use of it?^②

There are already a number of modern vehicles which are not yet in common use, but which may become a usual means of transport in the future. One of these is the small electric car: we go out into the street, find an empty car, get into it, drive to our destination (either freely on a road as in a present-day car, or along rails),^③ get out and leave the car for the next person who comes along. In fact, there may be no need to drive these cars. With an automatic guidance system, it will be possible for us to select our destination just as today we select a telephone number, and our car will move automatically to the address we want.^④ Payment for the journey could be made either indirectly through taxes (in other words, the journey would be “free”), or directly by means of a credit card.

Long journeys in private cars could also use automatic guidance systems. We can imagine a time when laying down^⑤ the necessary equipment for a guidance system will be part of the normal motorway construction work, just as railway tracks have been laid down in the past. Arriving on the motorway, a driver will select the lane he wishes to use, switch over to automatic driving, and then relax — dream, read the newspaper,

① The time is coming when it will be quicker to fly ... than ... to the office: 這兒用 be + 現在分詞表示將來時態。when 帶出的是一個定語從句說明 time。定語從句中的實際主語是 to fly. Atlantic[æ'tlæntik] 大西洋。

② What vehicle shall we use and how can we plan our use of it?: 這是一個表語從句。句末 it 指的是 vehicle。③ either freely on a road as in a present-day car, or along rails: either ... or 或者...或者, on a road 與 along rails 為並列狀語。④ ... we want: 是一個定語從句, 省略了作賓語的連詞 that。⑤ laying down: 設計。