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**ENGLISH:  
TEXTS FOR READING AND DISCUSSING**

**АНГЛИЙСКИЙ ЯЗЫК:  
ТЕКСТЫ ДЛЯ ЧТЕНИЯ И ОБСУЖДЕНИЯ**

**Практическое пособие  
для студентов 1–2 курсов  
специальности 1-33 01 02 «Геоэкология»**

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темам пяти тематических разделов отвечают динамике современного  
научно-технического прогресса и требованиям программы.  
Эффективное практическое овладение языком обеспечивается  
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сиональных текстов, а также формирования устной речи, письма,  
переводческих навыков студентов неязыковых специальностей вузов.

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РЕПОЗИТОРИЙ ГГУ ИМЕНИ Ф.СКОРИНЫ

## **ВВЕДЕНИЕ**

Предлагаемое практическое пособие предназначено для чтения на английском языке для студентов неязыковых специальностей. Представленные аутентичные тексты отвечают динамике современного научно-технического прогресса, а также требованиям программы по английскому языку для студентов высших учебных заведений.

Книга направлена на обучение студентов различным видам чтения профессиональных текстов, владение которыми необходимо будущим специалистам, а также на формирование навыков устной речи, письма, переводческих навыков. Помимо этого пособие может быть использовано при работе в студенческих группах с углубленным изучением английского языка для развития навыков чтения и говорения по теме «Моя будущая профессия».

В пособии пять тематических разделов (Units), содержание каждого из которых предусматривает выполнение следующих упражнений:

- чтение и перевод аутентичного текста;
- вопросы по содержанию текста;
- поиск лексических соответствий;
- определение соответствий высказываний тексту;
- заполнение пропусков необходимыми по смыслу предлогами;
- заполнение пропусков необходимыми по смыслу лексическими единицами;
- пересказ текста.

Оригинальные тексты по темам разделов, а также комплекс условно-речевых и речевых упражнений, входящие в настоящее практическое пособие, отвечают принципам современной коммуникативной методики.

# **UNIT 1**

## **AIR POLLUTION**

### **Ex. 1 Read and translate the text:**

#### **THE OZONE LAYER**

Although ozone (O<sub>3</sub>) is present in small concentrations throughout the atmosphere, most ozone (about 90 %) exists in the stratosphere, in a layer between 10 and 50 km above the surface of the earth. This ozone layer performs the essential task of filtering out most of the sun's biologically harmful ultraviolet (UV-B) radiation.

Concentrations of ozone in the atmosphere vary naturally according to temperature, weather, latitude and altitude. Furthermore, aerosols and other particles ejected by natural events such as volcanic eruptions can have measurable impacts on ozone levels.

#### **THE OZONE HOLE**

In 1985, scientists identified a thinning of the ozone layer over the Antarctic during the spring months, which became known as the "ozone hole". The scientific evidence shows that human-made chemicals are responsible for the creation of the Antarctic ozone hole and are also likely to play a role in global ozone losses.

Ozone Depleting Substances (ODS) have been used in many products which take advantage of their physical properties (e.g. chlorofluorocarbons (CFCs) have been used as aerosol propellants and refrigerants). CFCs are broken down by sunlight in the stratosphere, producing halogen (e.g. chlorine) atoms, which subsequently destroy ozone through a complex catalytic cycle. Ozone destruction is greatest at the South Pole where very low stratospheric temperatures in winter create polar stratospheric clouds (PSCs). Ice crystals formed in PSCs provide a large surface area for chemical reactions, accelerating catalytic cycles. The destruction of ozone also involves sunlight, so the process intensifies during springtime, when the levels of solar radiation at the pole are highest, and PSCs are continually present.

Although ozone levels vary seasonally, stratospheric ozone levels have been observed to be decreasing annually since the 1970s. Mid-latitudes have experienced greater losses than equatorial regions.

In 1997, the Antarctic ozone hole covered 24 million km<sup>2</sup> in October, with an average of 40 % ozone depletion and ozone levels in Scandinavia, Greenland and Siberia reached an unprecedented 45 % depletion in 1996.

## **ENVIRONMENTAL AND HEALTH EFFECTS**

The amount of UV reaching the earth's surface has been shown to correlate with the extent of ozone depletion. In 1997, UV-B levels continued to rise at a rate of 2 % per annum. Increased UV levels at the earth's surface are damaging to human health, air quality, biological life, and certain materials such as plastics. Human health effects include increases in the incidence of certain types of skin cancers, cataracts and immune deficiency disorders. Increased penetration of UV results in additional production of ground level ozone, which causes respiratory illnesses. Biologically, UV affects terrestrial and aquatic ecosystems, altering growth, food chains and biochemical cycles. In particular, aquatic life occurring just below the surface of the water, where plant species forming the basis of the food chain are most abundant, are adversely affected by elevated levels of UV radiation. The tensile properties of certain plastics can be affected by exposure to UV radiation. Depletion of stratospheric ozone also alters the temperature distribution in the atmosphere, resulting in indeterminate environmental and climatic impacts.

## **FUTURE PERSPECTIVE**

Despite existing regulation of ODS, there continues to be severe ozone depletion and maximum stratospheric levels of chlorine and bromine are predicted to occur only during the next decade. Without further measures, the ozone hole will continue to exist beyond 2050. However, the success of the Montreal Protocol has already been observed in terms of changes in the concentrations of man-made chlorine-containing chemicals in the troposphere (i.e. the rates of release of ODS to the atmosphere have been reduced). Additional measures are currently being proposed by the European Commission to accelerate the phase out of various ODS and thereby to provide much-needed additional protection for the ozone layer.

## **WHAT YOU CAN DO TO PROTECT THE OZONE LAYER**

You have already taken the first steps to help protect the ozone layer by informing yourself of the problem and its causes. Try to find out as much as you can about the problem from publications, schools or public libraries.

The only way to mend the ozone hole is to stop the release of CFCs and other ozone depleting substances (ODS) into the atmosphere. European legislation aims to achieve this by phasing out ODS as soon as viable alternatives become available, and where no such alternatives are available, restricting the use of these substances as far as possible. However, there are a number of practical initiatives, which can be taken at the individual level to help protect the ozone layer: try to use products, which are labeled “ozone-friendly”.

Ensure technicians repairing your refrigerator or air conditioner recover and recycle the old CFCs so they are not released into the atmosphere.

Vehicle air conditioning units should regularly be checked for leaks.

Ask about converting your car to a substitute refrigerant if the a/c system needs major repair. Remove the refrigerant from refrigerators, air conditioners, and dehumidifiers before disposing of them.

Help start a refrigerant recovery and recycling program in your area if none already exists. Suggest school activities to increase awareness of the problem and to initiate local action.

## **PROTECTING YOURSELF FROM UV RADIATION**

There is a direct link between increased exposure to UV radiation and elevated risk of contracting certain types of skin cancers. Risk factors include skin type, sunburn during childhood, and exposure to intense sunlight. Recent changes in lifestyle, with more people going on holiday and deliberately increasing their exposure to strong sunlight, are partly responsible for an increase in malignant skin cancers. In order to minimize the risk of contracting skin cancer, cover exposed skin with clothing or with a suitable sunscreen, wear a hat, and wear UV-certified sunglasses to protect the eyes.

## **CARBON MONOXIDE IN THE ATMOSPHERE**

Human activities cause nearly half of the world's carbon monoxide pollution. It is produced by the deficient or incomplete combustion of gasoline and other fossil fuels such as used in automobiles, furnaces and industry, as well as by the burning of natural organic matter such as wood and grasses (from fireplaces to forest fires). Not only is carbon monoxide dangerous by itself, but it also produces ozone, a greenhouse gas that forms naturally in the upper atmosphere but is dangerous to humans.

According to NASA, Terra has allowed scientists to observe carbon monoxide in the atmosphere from two to three miles above the Earth's surface where it forms ozone through interaction with other gases. Once the pollutant moves higher in the atmosphere, high winds can blow it rapidly across great distances. By tracking this movement, scientists can also track the movement of other pollutants that are also produced by combustion but are not easily detected from space.

Using the Data Such technology not only gives scientists details on the state of the Earth's current condition, but the information it produces will help scientists, engineers, researchers, consumers and industry plan a course of action to correct the problems. People have known for years that the burning of fossil fuels and organic matter creates pollution, but technology such as the Terra satellite provides specific detail on what happens to that pollution. Contrary to many theories and common beliefs that air pollution simply dissipates in the atmosphere or is remedied by Earth's natural processes, we have learned that these pollutants not only can remain in the atmosphere for very long periods of time, but they can reach anywhere in the world. The Antarctic is a very good example. This pristine, ice-covered continent is untouched by industry and dense human populations that are strong sources of pollution. Yet, traces of these pollutants can be found in Antarctica's ice shelves and the seawaters that surround it.

Methane hydrates, found in large deposits underneath ocean floors, could meet the world's energy needs for centuries, but mining them and their environmental impact are still questionable. Armed with this information, scientists and engineers – supported by industry – are racing to develop alternative energy to the point where it can effectively and affordably replace the need for fossil fuels, and to find ways to burn fossil fuels more efficiently. Already, hybrid combustion

cars – which operate primarily from an electric engine and is supported by a separate combustion engine when needed – have entered the mass marketplace and are expected to develop firm roots among consumer over the next ten years. The hybrid automobile is seen as a bridge between today's all-combustion engines and the non-combustion engines of the future. Solar energy is slowly becoming utilized as a feasible alternative form of energy, but has not yet been able to meet the extraordinary energy demands of industry. Water and wind have been tapped as energy sources throughout history, and they will continue to serve as important sources for part of the world's energy needs.

The key challenges may not be pollution so much as the dwindling fossil fuel reserves that remain. With fossil fuels being consumed faster than they form, we can expect to deplete them before the end of this century.

Methane hydrates could solve the planet's energy needs for centuries to come, but the impact they could have on the environment is poorly understood.

**Ex. 2 Answer the following questions:**

- 1 Where does most ozone exist?
- 2 What is responsible for the creation of the Antarctic ozone hole?
- 3 What is damaging to human health, air quality, biological life, and certain materials such as plastics?
- 4 Biologically, UV affects terrestrial and aquatic ecosystems, altering growth, food chains and biochemical cycles, doesn't it?
- 5 The success of what protocol has already been observed in terms of changes in the concentrations of man-made chlorine-containing chemicals in the troposphere?
- 6 What is the only way to mend the ozone hole?
- 7 What should we do in order to minimize the risk of contracting skin cancer?
- 8 Once the pollutant moves deeper in the ground, high winds can blow it rapidly across great distances, can't it?
- 9 Where can traces of pollutants be found?
- 10 What is seen as a bridge between today's all-combustion engines and the non-combustion engines of the future?

**Ex. 3 Match the equivalents:**

a) latitude;  
malignant;  
altitude;  
aerosol propellants;  
solar radiation;  
immune deficiency disorders;  
ozone-friendly;  
dehumidifiers;  
exposure;

b) высота над уровнем моря;  
аэрозольные вещества;  
расстройства иммунной системы;  
осушитель;  
подвержение какому-либо воздействию;  
не причиняющий вреда озоновому слою;  
солнечная радиация;  
злонакачественный, болезнетворный;  
широта.

**Ex. 4 Match the equivalents:**

a) химикаты;  
воздействие;  
органическое вещество;  
взаимодействие;  
перерабатывать;  
вещество;  
парниковые газы;  
одноокись;  
газолин;  
реальный, осуществимый;

b) monoxide;  
gasoline;  
organic matter;  
impact;  
feasible;  
interaction;  
greenhouse gas;

recycle;  
substance;  
chemicals.

**Ex. 5 Are these statements true or false?**

1 Concentrations of ozone in the atmosphere vary naturally according to temperature, weather, latitude and altitude.

2 In 1985, scientists identified a thinning of the ozone layer over the Arctic during the spring months.

3 Ozone destruction is greatest at the North Pole.

4 Although ozone levels vary seasonally, stratospheric ozone levels have been observed to be decreasing annually since the 1990s.

5 Antarctic ozone hole covered 24 million km<sup>2</sup> in October.

6 The amount of UV reaching the earth's surface has been shown to correlate with the extent of ozone depletion.

7 Aquatic life occurring just above the surface of the land, where plant species forming the basis of the food chain are most abundant, are adversely affected by elevated levels of UV radiation.

**Ex. 6 Fill in the gaps with the appropriate preposition:**

1 Depletion of stratospheric ozone also alters the temperature distribution in the atmosphere, resulting ... indeterminate environmental and climatic impacts.

2 However, the success of the Montreal Protocol has already been observed ... terms ... changes ... the concentrations of man-made chlorine-containing chemicals in the troposphere.

3 Try to find ... as much as you can ... the problem from publications, schools or public libraries.

4 Vehicle air conditioning units should regularly be checked ... leaks.

5 Remove the refrigerant ... refrigerators, air conditioners, and dehumidifiers before disposing ... them.

6 According ... NASA, Terra has allowed scientists to observe carbon monoxide ... the atmosphere.

7 ... tracking this movement, scientists can also track the movement of other pollutants.

8 The Data Such technology gives scientists details ... the state of the Earth's current condition.

9 The Terra satellite provides specific detail ... what happens to that pollution.

10 Armed ... this information, scientists and engineers – supported ... industry – are racing to develop alternative energy.

**Ex. 7 Complete the sentences using the words in brackets:**

*(losses, alternatives, particles, released, crystals, penetration, evidence)*

1 Aerosols and other ... ejected by natural events such as volcanic eruptions can have measurable impacts on ozone levels.

2 The scientific ... shows that human-made chemicals are responsible for the creation of the Antarctic ozone hole.

3 Ice ... formed in PSCs provide a large surface area for chemical reactions, accelerating catalytic cycles.

4 Mid-latitudes have experienced greater ... than equatorial regions.

5 Increased ... of UV results in additional production of ground level ozone, which causes respiratory illnesses.

6 European legislation aims to achieve this by phasing out ODS as soon as viable ... become available.

7 Ensure technicians repairing your refrigerator or air conditioner recover and recycle the old CFCs so they are not ... into the atmosphere.

**Ex. 8 Find English equivalents:**

утечка; прямая связь; факторы риска; минимизировать; лесные пожары; космос; исследователи; естественные процессы; нетронутый; энергетические потребности; запасы; измеримый; охладитель; стратосферный; беспрецедентный; проникновение; поверхность; распределение; дополнительный; солнечный свет.

**Ex. 9 Give a summary of the text using the following phrases:**

the title of the text is ...; the text deals with ... (is devoted to ..., is about ...); the text stresses the importance of ...; the text further says ...; in conclusion the author says ...; concerning the problem.

## **UNIT 2**

# **ENVIRONMENTAL PROTECTION**

### **Ex. 1 Read and translate the text:**

#### **THE PROJECT: REDUCE POLLUTION**

CO<sub>2</sub>. Carbon dioxide is the principle «greenhouse gas» implicated in global warming. CO<sub>2</sub> is released into the atmosphere as a result of burning fossil fuels such as coal, oil and natural gas. Coal is particularly dirty, producing about twice as much CO<sub>2</sub> for the same amount of power as natural gas. CO<sub>2</sub> is also generated in smaller amounts by forest clearing and cement production.

NO<sub>x</sub>. Nitrogen oxides cause smog, irritate the lungs and lower resistance to respiratory infections such as influenza. Smog is formed when nitrogen oxides, which are emitted by burning fossil fuels at electric power plants and in automobiles, mix with other chemicals in the air, sunlight, and heat. The two largest sources of smog-forming pollution are motor vehicles (30 %) and power plants (26 %).

The effects of short-term exposure to nitrogen oxides are still unclear, but continued or frequent exposure to concentrations higher than normal may cause increased incidence of acute respiratory disease in children.

Nitrogen oxides are an important precursor to both ozone and acidic acid rain and can affect both land and water ecosystems. SO<sub>2</sub>. Sulfur dioxide comes from the combustion of fuel containing sulfur, mostly coal and oil. It is also produced during metal smelting and other industrial processes. The major health concerns associated with exposure to high concentrations of SO<sub>2</sub> include effects on breathing, respiratory illness, alterations in the lung's defenses, and aggravation of existing cardiovascular disease. While everybody is adversely impacted by SO<sub>2</sub> to some degree, people that are particularly at risk include asthmatics and individuals with cardiovascular disease or chronic lung disease, as well as children and the elderly.

#### **WHAT IS GLOBAL WARMING AND WHY ARE GREENHOUSE GAS EMISSIONS RAISING THE EARTH'S TEMPERATURE?**

Increases in concentrations of carbon dioxide and other pollutants contribute to global warming, which is predicted to raise average

temperatures, alter precipitation patterns, and raise sea levels. These changes may negatively impact our quality of life, including increases in infectious diseases, respiratory illness, and weather related deaths. Global warming may also decrease crop yields, water quality, and regional forest health and productivity. Atmospheric concentrations of CO<sub>2</sub> have been increasing at a rate of about 0.5 % per year and are now about 30 % above pre-industrial levels.

## **HOW DOES SO<sub>2</sub> CREATE ACID RAIN?**

Scientists have confirmed that sulfur dioxide (SO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>) are the primary causes of acid rain. Acid rain occurs when these gases react in the atmosphere with water, oxygen, and other chemicals to form various acidic compounds. Sunlight increases the rate of most of these reactions. The result is a mild solution of sulfuric acid and nitric acid.

## **WHAT IS THE ELPC?**

The Environmental Law and Policy Center (ELPC) is the Midwest's leading public interest environmental legal advocacy and eco-business innovation organization. We develop and lead successful strategic environmental advocacy campaigns to protect our natural resources and improve environmental quality. We are public interest environmental entrepreneurs who engage in creative business deal making with diverse interests to put into practice our belief that environmental progress and economic development can be achieved together.

ELPC's multidisciplinary staff of experienced public interests attorneys, environmental business specialists, and policy advocates and communications specialists brings a strong and effective combination of skills to solve environmental problems. ELPC promotes development of clean energy efficiency and renewable energy resources to reduce pollution from coal and nuclear plants, advocates high-speed rail and smart growth planning solutions to combat sprawl, and implements sound environmental management practices to preserve natural resources and improve the quality of life in our communities. Our vision embraces both smart, persuasive advocacy and sustainable development principles to win the most important environmental cases and issues in the Midwest.

## **AS THE EARTH WARMS: THE THINNING OF THE ARCTIC ICE CAP**

The geographic North Pole was last covered with water about 50 million years ago, during the early part of the present Cenozoic Era. Known as the age of Mammals and the recent Life Era, this modern age, which saw the dawn of human beings began 65 million years ago.

This global view of the Arctic Ocean, captured using advanced radar that sees through all weather conditions, is enabling researchers to determine how global warming may be affecting the Polar Ice Cap. The Arctic sea ice is providing clues to the Earth's overall climatic condition.

During the Cenozoic Era, the continents that formed Pangea, the super continent, had begun to move into their present positions. As these continents drifted northward, they formed the shoreline of the Arctic Ocean, which lies directly over and around the geographic North Pole.

About 15 million years into the Cenozoic Era (about 50 million years ago), the Arctic Ice Cap formed over the Arctic Ocean, virtually covering the entire sea with a sheet of ice. As the continents continued to move, climatic changes brought about by shifts in water and air currents caused the Earth to gradually cool down. This created the glaciers that mostly dominated the land masses through the end of the Great Ice Age in the Pleistocene Epoch, about 10,000 to 1.8 million years ago, and that still exist today on Greenland.

The same climatic conditions that created the glaciers, which are essentially great ice sheets formed on land, also formed the Arctic Ice Cap. Yet the ice sheet covering the Arctic Ocean rests directly on top of the ocean instead of land, and it has remained relatively stable and frozen since it was formed ...

The Arctic Ice Cap is shrinking dramatically. Roughly the size of the United States, it has lost an area roughly the combined size of Massachusetts and Connecticut each year since the late 1970s. Since the 1950s, when data was first collected on the Arctic, the ice cap has lost nearly 22 % of its volume. It is projected that in another 50 years, nearly half of the Arctic Ice Cap will be gone.

So what is going on? We know that the Arctic Ice Cap, frozen for 50 million years, is melting. We also know that above normal Arctic temperatures from the ocean water to the air currents account for the melting. Global warming is real, and the melting of the Arctic Ice Cap is one of its symptoms.

Scientists have determined that the Earth's surface temperature has increased an average of 1 °F since the beginning of the 20th century, which is enough to trigger significant global climatic changes. According to the United States Environmental Protection Agency (EPA), the 20th century was the warmest century of the last millennium, and the 1990s was the warmest decade. Increased average temperatures have been recorded in both the southern and northern hemispheres, although some regions have recorded cooler temperatures.

Using the best available data, many scientists believe this warming trend will cause an additional 5–10 °F increase in the average global temperature in the next century. Still, there are many scientists who believe the global warming trend may reverse itself within the next century. The fact is, there is not enough known about WHY the climate is changing the way it is for scientists to determine what really is going on or what will happen in the future.

But there is enough information to tell us several things.

1 Human activity, such as the burning of fossil fuels, is releasing enormous volumes of carbon dioxide and other greenhouse gases that are contributing to the Earth's natural greenhouse effect, the Earth's natural process of trapping the sun's warmth. About 5–6 billion tons of carbon dioxide are emitted each year due to human activity. This increase results in additional heat being trapped within the Earth's atmosphere.

2 The Polar Ice Cap itself reflects sunlight energy (heat) back into space, rather than the heat being absorbed by the Earth. This is called albedo, the amount of sunlight reflected by an object. As the Ice Cap melts however, the albedo is reduced and the Earth absorbs the energy that is not reflected. Thus, more heat is retained in the Arctic.

3 The Earth's natural carbon cycling process the amount of carbon dioxide that enters and leaves the atmosphere as a result of the natural cycle of water exchange from and back into the sea and plants account for about 95 % of the carbon dioxide in the atmosphere which contributes to the greenhouse effect.

4 Ocean waters constantly move along a giant oceanic conveyer belt, which travels, from the North Atlantic to the Atlantic, Pacific and Indian Oceans. This circulation distributes warm tropical waters northward, which are then chilled and returned to the warmer southern oceans. This heat exchange also has a significant impact on global weather patterns.

Ocean waters are constantly on the move, carrying warmer waters north toward the Arctic and cooler waters south to the temperate and tropical zones. This ocean circulation is referred to as the great oceanic conveyor belt, which is a single continuous current that carries chilled water from the North Atlantic into the Atlantic, Indian and Pacific basins. The conveyor belt returns water warmed in the tropics back to the North Atlantic.

Ocean currents also affect global heat exchange by redistributing heat, especially in coastal regions. In fact, the oceans have the greatest impact on the Earth's climate.

## **PUTTING IT ALL TOGETHER**

The point is that while all of these things are taking place at the same time none of them exists in a vacuum. They are all interrelated and can have a reciprocating effect on each other. To what extent, scientists do not know at this point.

The climatic changes that are taking place can have profound impacts on the Earth's ecosystems, human health, plant and animal species. Scientists fear that continued melting of sea ice could weaken the North Atlantic Current, the northward continuation of the Gulf Stream. The Gulf Stream transports 25 times more water than all the Earth's rivers, and a diversion could result in extremely cold winters in the North Atlantic regions, especially in northern Europe.

There are many-fold scenarios; however, human-induced global warming is one that we should pay close attention to because we can control it. If we can reduce carbon-dioxide emissions, it could have a penetrating effect on the natural climatic occurrences that have been affected by human activity. Scientists project that the amount of carbon dioxide released into the atmosphere in the next 30 years will double or triple. The number of cars in operation around the world will double by the year 2030.

### **Ex. 2 Answer the following questions:**

- 1 What are SO<sub>2</sub>, NO<sub>x</sub>, and CO<sub>2</sub>?
- 2 How do they contribute to pollution?
- 3 What contributes to global warming?
- 4 When does acid rain occur?
- 5 Why do the ELPC develop and lead successful strategic environmental advocacy campaigns?

6 When did the Arctic Ice Cap form over the Arctic Ocean?

7 Scientists have determined that the Earth's surface temperature has increased an average of 1 °F since the beginning of the 20th century, haven't they?

8 What does human activity do?

9 What is referred to as the great oceanic conveyor belt?

10 The climatic changes that are taking place can have profound impacts on the Earth's ecosystems, human health, plant and animal species, can't they?

**Ex. 3 Match the equivalents:**

a) respiratory infections;

water ecosystems;

average temperatures;

acidic compounds;

energy efficiency;

the Cenozoic Era;

a sheet of ice;

glacier;

albedo;

b) средние температуры;

слой льда;

инфекции дыхательных путей;

альbedo;

Ценозойская Эра;

ледник;

эффективность использования энергии;

водные экосистемы;

кислотные составляющие.

**Ex. 4 Match the equivalents:**

a) возвратно-поступательный эффект;

отклонение;

впитывать, поглощать;

воздушные потоки;

широкая полоса;

солнечное тепло;

дрейфовать;

ослаблять;  
береговая линия;  
солнечный свет;

b) the sun's warmth;  
shoreline;  
drift;  
sheet;  
a diversion;  
absorb;  
a reciprocating effect;  
sunlight;  
air currents;  
weaken.

**Ex. 5 Are these statements true or false?**

1 Coal is particularly dirty, producing about thrice as much CO<sub>2</sub> for the same amount of power as natural gas.

2 The effects of short-term exposure to nitrogen oxides are still unclear.

3 Increases in concentrations of carbon dioxide and other pollutants don't contribute to global warming.

4 Scientists have confirmed that sulfur dioxide (SO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>) are the primary causes of cancer.

5 ELPC promotes development of clean energy efficiency and renewable energy resources to reduce pollution from coal and nuclear plants.

6 The geographic South Pole was last covered with water about 50 million years ago.

7 About 5–6 billion tons of carbon dioxide are emitted each year due to human activity.

8 The Polar Ice Cap itself reflects moonlight energy (heat) back into space, rather than the heat being absorbed by the Earth.

9 Ocean waters constantly move along a giant oceanic conveyor belt, which travels, from the North Atlantic to the Atlantic, Pacific and Indian Oceans.

10 The climatic changes that are taking place can not have profound impacts on the Earth's ecosystems, human health, plant and animal species.

**Ex. 6 Fill in the gaps with the appropriate preposition:**

1 CO<sub>2</sub> is released ... the atmosphere as a result of burning fossil fuels such as coal, oil and natural gas.

2 Smog is formed when nitrogen oxides, which are emitted ... burning fossil fuels ... electric power plants and in automobiles, mix ... other chemicals in the air, sunlight, and heat.

3 The major health concerns associated ... exposure to high concentrations of SO<sub>2</sub> include effects on breathing.

4 Atmospheric concentrations of CO<sub>2</sub> have been increasing ... a rate of ... 0.5 % per year and are now about 30 % above pre-industrial levels.

5 The result is a mild solution ... sulfuric acid and nitric acid.

6 We are public interest environmental entrepreneurs who engage ... creative business deal making ... diverse interests to put ... practice our belief that environmental progress and economic development can be achieved together.

7 The Arctic sea ice is providing clues ... the Earth's overall climatic condition.

8 Yet the ice sheet covering the Arctic Ocean rests directly ... top of the ocean instead ... land.

9 More heat is retained ... the Arctic.

10 The Gulf Stream transports 25 times more water than all the Earth's rivers, and a diversion could result ... extremely cold winters in the North Atlantic regions, especially in northern Europe.

**Ex. 7 Complete the sentences using the words in brackets:**

*(dominated, natural gas, reverse, at risk, short-term, retained, present positions)*

1 Coal is particularly dirty, producing about twice as much CO<sub>2</sub> for the same amount of power as ... .

2 The effects of ... exposure to nitrogen oxides are still unclear, but continued or frequent exposure to concentrations higher than normal may cause increased incidence of acute respiratory disease in children.

3 While everybody is adversely impacted by SO<sub>2</sub> to some degree, people that are particularly ... include asthmatics and individuals with cardiovascular disease or chronic lung disease, as well as children and the elderly.

4 The continents that formed Pangea, the super continent, had begun to move into their ... .

5 This created the glaciers that mostly ... the land masses through the end of the Great Ice Age in the Pleistocene Epoch, about 10,000 to 1.8 million years ago, and that still exist today on Greenland.

6 Still, there are many scientists who believe the global warming trend may ... itself within the next century.

7 More heat is ... in the Arctic.

**Ex. 8 Find English equivalents:**

снижать; раздражать; источники; сера; продуктивность; основополагающий; реакции; эффективный; устойчивый; утончение; сдвиги; стабильный; данные; огромный; цикл; охлаждаться; круговорот; взаимосвязанные; эпизоды; утраиваться.

**Ex. 9 Give a summary of the text using the following phrases:**

the title of the text is ...; the text deals with ... (is devoted to ..., is about ...); the text stresses the importance of ...; the text further says ...; in conclusion the author says ...; concerning the problem.

## **UNIT 3**

### **WHAT IS TO BECOME OF US?**

**Ex. 1 Read and translate the text:**

#### **A NEW LOOK AT HUMAN EXTINCTION**

The very powerful technologies of the new Millennium – from robotics, genetic engineering and nanotechnologies – “are threatening to make humans an endangered species,” according to the April 2000 issue of “Wired Magazine” (“Why the Future Doesn’t Need Us”) in an article by Billy Joy, co-founder and chief scientist of Sun Microsystems. As man’s dependence on technology continues to substantially increase, so does his progress in developing intelligent machines that can and will do all things better than humans can do themselves.

In a way, it is the technological version of Charles Darwin’s “survival of the fittest.” If technological evolution reaches the point where sophisticated systems of machines can function on a cognitive level, and make decisions and perform tasks without the need for any

human intervention whatsoever, then, as Mr. Joy points out, the human race would be at the mercy of machines.

So, why doesn't the future need us? Mr. Joy covers this possibility in extraordinary thought which considers a simple theme in our efforts to improve the quality of our lives, we – humans – strive to make things that can do things better than we can ourselves. In so doing, we create things that replace what humans once did exclusively.

Just consider such simple creations as the calculator, remote control devices, personal computers and microwave ovens.

Yet, the 21<sup>st</sup> century will provide such compelling technologies as genetic engineering and nanotechnologies (work at the atomic, as opposed to the molecular level) that have the potential to threaten any human involvement whatsoever – far more than the simpler technologies of yore. According to Joy, “Specifically, robots, engineered organisms, and nanobots (robots on the atomic level) share a dangerous amplifying factor: they can self-replicate. A bomb is blown up only once – but one can become many, and quickly get out of control.” And the risk of this would be substantial damage to the physical world, the environment on which humans and all of Earth's other organic co-inhabitants depend.

The promises of these new technologies are equally powerful: virtual immortality, providing treatments and cures for almost every disease, and solutions and advances that could expand the human life span indefinitely and improve the quality of our lives – particularly the environment. All the while, Joy says, “with each of these technologies, a sequence of small, individually sensible advances leads to an accumulation of great power, and, concomitantly [coupled with], real danger.”

Simply getting rid of machines would be suicide, Joy points out. So perhaps an equally viable option is that human progress be tempered with the care of ensuring that human involvement remains essential to that progress, thereby ensuring that human needs are maintained and the quality of life improved. While it's true that machines and other products of our technologies have no consciousness, it does not mean that they will not some day have the cognitive qualities to perform tasks as humans do. Today, that is called science fiction. But as we have learned from our science fiction literature of the past, such things are based on real possibilities, many of which we have already

witnessed in our lifetime, such as space travel, visiting other planets, the creation of the atomic bomb, nuclear power and machines that will talk to you. Perhaps English author H.G. Wells, considered by many to be the father of modern science fiction, could foresee such human decline “at a time when civilization passes its zenith,” when he authored his first literary work, “The Time Machine” in 1895.

In speaking of the result of human progress witnessed far into the future by the Time Traveler, he wrote: “The great triumph of Humanity I had dreamed of took a different shape in my mind. It had been no such triumph of moral education and general co-operation as I had imagined. Instead, I saw a real aristocracy, armed with a perfected science and working to a logical conclusion the industrial system of today. Its triumph had not been simply a triumph over Nature, but a triumph over Nature and the fellow man.”

## **HOW CAN I BECOME INVOLVED AND MAKE A DIFFERENCE?**

First, think about what you might be able to change about your lifestyle that would help you consume less energy. Many of the simple things you’ve heard before really will help: walk or ride a bike instead of driving, turn off the lights, recycle and use products that have less packaging – it takes much more energy to produce new products than to reuse what we already have.

Then, encourage others in your family and community to do the same. Ask community leaders and decision makers in your state and Congress to provide incentives for conservation and energy efficiency, instead of consumption. Become involved with organizations that are speaking out about global warming, renewable energy and energy efficiency. Use e-mail to let friends and colleagues know about the global warming and energy problems and what they can do to help reduce greenhouse gases and use energy more efficiently.

## **WHAT KIND OF ENERGY EFFICIENT PRODUCTS/APPLIANCES CAN I BUY?**

The typical American household could reduce its electricity consumption by 40 % simply by replacing existing lighting and appliances with efficient Energy Star models. Such enormous efficiency gains can go a long way toward helping the US reduce

global warming gases. The most important appliances to consider are those that use the most energy: lights, refrigerators, washing machines and dryers, air conditioners, and dishwashers.

## **LIGHTING**

Lighting alone represents 10 % of US electricity consumption, and offers the largest potential savings. Compact fluorescent light bulbs (CFLs) generate the same amount of light as incandescent but use only 25 % of the electricity. CFLs cost more than incandescent, but because they last 10 times as long and use so much less electricity they have a lifetime cost that is much lower than the competition. Two companies producing CFLs are based in the Midwest and are members of the Midwest Global Warming Leadership Council: “GE Lighting”, headquartered in Cleveland, Ohio, is the largest lamp manufacturer in North America. “GE Lighting” offers a full line of “Energy Star Labeled” energy efficient compact fluorescent products.

“Technical Consumer Products (TCP)” in Aurora, Ohio manufactures spring lamps that use 75 % less energy when compared to an equivalent incandescent bulb. Spring lamp’s 10,000 hour average life equals 10 standard incandescent bulbs and it will fit anywhere a standard bulb will fit.

### **Ex. 2 Answer the following questions:**

- 1 What does the new Millennium predict?
- 2 What do people depend on mainly?
- 3 On what conditions would the human race be at the mercy of machines?
- 4 Why are new technologies considered powerful?
- 5 What equally viable option for people to be safe and sound is suggested?
- 6 Machines and other products of our technologies have no consciousness, do they?
- 7 What does H.G. Wells say about the result of human progress?
- 8 How can we become involved and help to save the environment?
- 9 What kind of energy efficient products can we buy?
- 10 Why do CFLs have a lifetime cost?

**Ex. 3 Match the equivalents:**

a) powerful;  
nanotechnologies;  
dependence on;  
survival;  
on a cognitive level;  
intervention;  
strive;  
provide;  
compelling;

b) вмешательство;  
мощный, крепкий;  
стараться, пытаться;  
захватывающий, интригующий;  
обеспечивать;  
на когнитивном уровне;  
вмешательство;  
зависимость от;  
нанотехнологии.

**Ex. 4 Match the equivalents:**

a) живые сообитатели;  
бессмертие;  
энергоэффективность;  
самовоспроизводимый;  
жизнеспособный;  
космическое путешествие;  
снижать;  
потребление электроэнергии;  
возобновляемый;  
научная фантастика;

b) self-replicate;  
organic co-inhabitants;  
immortality;  
viable;  
space travel;  
science fiction;

energy efficiency;  
renewable;  
reduce;  
electricity consumption.

**Ex. 5 Are these statements true or false?**

1 As man's dependence on technology continues to substantially increase, so does his progress in developing intelligent machines.

2 We strive to make things that can do things better than we can ourselves.

3 It takes less energy to produce new products than to reuse what we already have.

4 The typical European household could reduce its electricity consumption by 40 % simply by replacing existing lighting and appliances with efficient Energy Star models.

5 The most important appliances to consider are those that use the most energy: lights, the windmill, washing machines and dryers, air conditioners, and dishwashers.

6 Lighting alone represents 10 % of US electricity consumption, and offers the largest potential savings.

7 CFLs cost less than incandescent, but because they last 10 times as long and use so much less electricity they have a lifetime cost that is much lower than the competition.

8 Two companies producing CFLs are based in the Midwest and are members of the Midwest Global Warming Leadership Council.

9 "GE Lighting", headquartered in Cleveland, Ohio, is the largest lamp manufacturer in South America.

10 Spring lamp's 20,000 hour average life equals 10 standard incandescent bulbs and it will fit anywhere a standard bulb will fit.

**Ex. 6 Fill in the gaps with the appropriate preposition:**

1 ... a way, it is the technological version of Charles Darwin's "survival of the fittest."

2 Mr. Joy covers this possibility ... extraordinary thought.

3 According ... Joy, robots, engineered organisms, and nanobots can self-replicate.

4 The risk ... this would be substantial damage ... the physical world, the environment ... which humans and all of Earth's other organic co-inhabitants depend.

5 As we have learned ... our science fiction literature ... the past, such things are based ... real possibilities.

6 The great triumph ... Humanity I had dreamed ... took a different shape ... my mind.

7 Many ... the simple things you've heard before really will help: walk or ride a bike instead ... driving, turn ... the lights.

8 Encourage others ... your family and community to do the same.

9 Become involved ... organizations that are speaking ... about global warming, renewable energy and energy efficiency.

10 Such enormous efficiency gains can go a long way ... helping the US reduce global warming gases.

**Ex. 7 Complete the sentences using the words in brackets:**

*(global warming gases, a full line of, a different shape, consume, replace, incentives for, get out of control)*

1 We create things that ... what humans once did exclusively.

2 A bomb is blown up only once – but one can become many, and quickly ... .

3 The great triumph of Humanity I had dreamed of took ... in my mind.

4 First, think about what you might be able to change about your lifestyle that would help you ... less energy.

5 Ask community leaders and decision makers in your state and Congress to provide ... conservation and energy efficiency.

6 Such enormous efficiency gains can go a long way toward helping the US reduce ... .

7 “GE Lighting” offers ... “Energy Star Labeled” energy efficient compact fluorescent products.

**Ex. 8 Find English equivalents:**

робототехника, находящиеся под угрозой виды, эволюция, принимать решения, приспособления для дистанционного управления, ущерб, сопутствующий, сознание, атомная энергия, повторно использовать, парниковые газы, лампы накаливания, электричество, иметь штаб-квартиру в, предлагать, компактный, производство, средний, равняться, стандартный.

**Ex. 9 Give a summary of the text using the following phrases:**

the title of the text is ...; the text deals with ... (is devoted to ..., is about ...); the text stresses the importance of ...; the text further says ...; in conclusion the author says ...; concerning the problem.

## **UNIT 4**

### **ENDANGERED SPECIES**

**Ex. 1 Read and translate the text:**

#### **JAPANESE WHALING: ALL IN THE NAME OF SCIENCE**

Despite widespread international criticism, Japan continues to defy the international moratorium on commercial whaling.

Each year Japan takes a total of more than 500 whales from the North Pacific and from the Southern Ocean Whale Sanctuary. This sanctuary was established by the IWC in 1994 as an international “safe haven” for whales.

In May 2000, Japan expanded its “scientific” whaling program in the North Pacific to include an annual take of ten sperm and 50 Bryde’s whales. Each Bryde’s whale yields significantly much meat, thus the inclusion of the new species makes Japan’s hunt much more profitable.

The move to take Bryde’s whales was described by the United Kingdom’s then-Fisheries Minister, Elliot Morley, as “a blatant act of defiance of international opinion”, deserving “widespread international condemnation.”

On 27 February 2002, Japan announced plans to further expand its scientific whaling program in the North Pacific by including a quota of 50 individuals of yet another species – the sei whale. The sei whale is considered “Protected Stock” by the IWC because it was depleted by commercial whaling only a few decades ago. This species is also listed as endangered by the IUCN (World Conservation Union).

Moreover, Japan intends to increase the number of whales it kills by allowing its coastal whaling companies to hunt 50 of them annually. For many years Japan has been arguing for this interim

quota for relief to “distressed local communities,” but has so far failed to convince the IWC. Now they have decided to take the whales anyway for the purposes of “science”.

On 6 March 2002, the Japanese government announced that it intends to import Norwegian whale meat beginning as soon as April 2002. This commercial trade in whale products would be the first in more than a decade.

It is in defiance of an international ban on trade in whale products under the Convention on International Trade in Endangered Species.

The Australian Federal Minister for the Environment and Heritage, Dr David Kemp, said in a statement condemning this latest move by the whaling countries, “This is the second alarming announcement within a week to indicate that whaling nations are aggressively charting a course to resume hunting whales on a commercial basis, despite international opinion.”

The Japanese whaling fleet departs twice a year; in November to the “Southern Ocean Sanctuary” to take 400-plus whales, and around May to the northwest Pacific to take 100 Bryde’s and sperm whales. Commencing this year, they will also hunt sei whales.

On 24 September 2002, Japan’s whaling fleet returned to port having killed a total of 94 whales (according to Fisheries Agency official Kiichiro Mitsumori) from a planned catch of 210. The six whaling boats caught 50 Bryde’s, 39 sei and five sperm whales in the northwest Pacific Ocean.

## **ICELAND: WHALING VERSUS WHALE WATCHING**

In 2002, Iceland was allowed to rejoin the International Whaling Commission (IWC) with a “reservation” on the commercial whaling moratorium. In other words, it is once again a member of the IWC but does not wish to comply with the current ban on whaling.

Iceland withdrew from the IWC in 1992 and has abided by the IWC’s moratorium on commercial whaling since 1990. However, at the 2001 and 2002 IWC meetings, Iceland stated that it wanted to rejoin the commission – this time with a reservation on the moratorium.

Iceland’s request was twice rejected by the IWC members. But, at an intercessional meeting on 14 October 2002, Iceland was finally

voted in. Many countries were upset at this outcome. Sweden, Germany, Brazil, France, Italy, Netherlands, the United Kingdom and Mexico have either lodged a formal objection to this decision or are in the process of doing so.

Iceland's successful effort to rejoin the IWC has seriously disrupted business at two of the IWC's annual meetings. More importantly, it raises the question of whether any IWC decision will remain binding.

In the future, other nations may simply leave the IWC and rejoin with a reservation to any existing decision they cannot abide. This risks subverting the intention of an international agreement that was designed to regulate the activities of each its members for the greater good.

These attempts to sabotage the international system of protection for whales bring no material benefits to Iceland, but they could result in Iceland acquiring the image of an anti-conservation nation, thereby damaging its tourism and export industries.

The behavior of the Icelandic delegation to the IWC and CITES has been quite out of line with the normally serious and responsible position of Iceland in other international affairs. Though Iceland has rejoined the IWC with a reservation, in other international forums it argues against countries taking reservations to key decisions.

Now that Iceland has completed one season of "scientific" whaling – after having been readmitted to the IWC on a promise of not hunting whales before 2006, it has shown a serious breach of faith.

Iceland should now abide by the IWC's rules. Although legal, Iceland is likely to suffer negative consequences for choosing to use the "scientific" whaling provision of the IWC.

## **LOBSTERS ARE DISAPPEARING**

Lobsters are disappearing from the once bountiful. Long Island Sound that runs between Long Island, NY, and the mainland coast of Connecticut and New York, causing a great fear among fisherman and consumers alike that the future bodes ill for this popular delicacy. Nobody knows why they are disappearing although a combination of warming waters and environmental stresses are suspected. This is already having a huge impact on the New York – Connecticut lobster industry, particularly the fishermen whose businesses are off as much as 70 percent because of the weak lobster crop. Disaster relief requests

from New York and Connecticut are already being considered by the US Commerce Department.

Restaurants need not worry, however. Canada, Maine and Massachusetts are the major suppliers and they continue to produce millions of pounds of lobster annually. In 1998 alone, Massachusetts and Maine provided nearly 60 million pounds of lobster for human consumption.

## **CAPTIVE CHIMPANZEES FIND SANCTUARY**

It took a great collective effort to rescue a group of chimpanzees from the laboratories of the Coulston Foundation. These chimpanzees, which were part of the US space program, were awarded to Coulston in August 1998 by the US Air Force and the Department of Defense as a result of a Congressional decree. And so, on October 28, 1999, after a yearlong lawsuit against the US Air Force, the Center for Captive Chimpanzee Care (CCCC) was awarded 21 of the chimpanzees that will be retired to a 150-acre sanctuary in South Florida. The chimpanzees are expected to move to their new homes sometime this spring or summer, as soon as the compound can be prepared to accommodate them. Even though it was the will of many people to retire the “Space Chimps”, including such well-known supporters as Dr. Jane Goodall and Dr. Roger Fouts, it was the efforts of CCCC founder and director Dr. Carol Noon that made it happen. “This has been an agonizing year, but today makes it all worthwhile,” Dr. Noon said after the agreement was announced.

The agreement follows a yearlong lawsuit brought against the U.S. Air Force by the Center. The Center filed its case after the Air Force awarded 111 of its 141 chimpanzees to The Coulston Foundation in August 1998. The chimps were the subjects of a controversial. The Center, which has world-renowned primatologist Jane Goodall on its board of directors, submitted a proposal to the Air Force to retire the chimps to a sanctuary, but the bid was rejected. The remaining 30 chimps were sent to Primarily Primates in San Antonio, TX, which is a sanctuary for chimpanzees and other “domesticated” wildlife unable to be returned to the wild.

Chimpanzees have been used as human surrogates in biomedical experiments for most of the 20<sup>th</sup> century. The reason was that chimpanzees are most similar to humans of all other animal species;

they share about 98.5 percent of humans' DNA; and it was "logically" felt that the very dangerous and often lethal tests for the advancement of human medicine would be best served by using chimpanzees. This gave rise to the development of a large number of biomedical research laboratories, such as the Coulston Foundation, which have heavily relied upon such research on chimpanzees and the billions of dollars they have received in funding for such research.

The chimpanzees awarded to the Center for Captive Chimpanzee Care are direct descendants of those who paved the way for human space travel. The most famous of these descendants is Ham, the first chimp in space, who preceded Alan Shepard's inaugural manned space flight. CCCC's chimpanzees range in age from 6 to 40 years old. The oldest is Hanzie who was born in Africa right around the time Jane Goodall began her study of chimpanzees. The youngest is Lil' Mini whose mother died last year. Minnie was used in the original Project Mercury tests including zero gravity testing. Mercury "couch" training – the chair Ham and Enos (the second chimpanzee in space) were strapped into during their space flights. Enos' flight was a full dress rehearsal for the space flight that would carry it into orbit.

Did you know...? Chimpanzees do not smile. When they appear to be smiling, such as Ham appeared to be doing when he returned to Earth from his space flight on January 21, 1961, they are most likely frightened. In a recent Ecology interview with Dr. Jane Goodall, she said, "In all of my years of observing chimpanzees in the wild, I have never seen one of them "smile". When they grin the way Ham was grinning as he sat in his space capsule, they are truly frightened." The Air Force interpreted Ham's smile as an extreme state of happiness and thus labeled the test flight a total success. It was reported that Ham was so frightened by the space flight, he refused to go back into the Mercury capsule that took him into space during a press conference following the historic event.

**Ex. 2 Answer the following questions:**

- 1 How many whales does Japan take from the North Pacific and from the Southern Ocean Whale Sanctuary?
- 2 How does Japan intend to increase the number of whales it kills?
- 3 When did Iceland withdraw from the IWC?
- 4 From where was a group of chimpanzees rescued?

5 Chimpanzees have been used as human surrogates in biomedical experiments for most of the 20<sup>th</sup> century, haven't they?

6 Why were the chimpanzees used in those experiments?

7 Name at least one biomedical research laboratory in the USA.

8 Whose descendants are the chimpanzees awarded to the Center for Captive Chimpanzee Care?

9 Which is the most famous of these descendants?

10 Do chimpanzees smile?

**Ex. 3 Match the equivalents:**

a) whaling;

sanctuary;

an annual take;

a sperm whale;

a sei whale;

interim quota;

in defiance of;

an international ban;

whaling fleet;

b) китобойная флотилия;

международный запрет;

временная квота;

ежегодная добыча;

китобойный промысел;

заказник, заповедник;

кашалот;

сейвал;

с явным пренебрежением к.

**Ex. 4 Match the equivalents:**

a) негативные последствия;

материальные выгоды;

ученый, изучающий приматов;

напуганный;

одомашненный;

имеющийся в изобилии;

судебная тяжба;

международная система защиты;  
скалить зубы;  
космический полет;

b) international system of protection;  
material benefits;  
negative consequences;  
bountiful;  
lawsuit;  
primatologist;  
domesticated;  
space flight;  
grin;  
frightened.

**Ex. 5 Are these statements true or false?**

1 Each sperm whale yields significantly much meat, thus the inclusion of the new species makes Japan's hunt much more profitable.

2 The Bryde's whale is listed as endangered by the IUCN (World Conservation Union).

3 The Japanese whaling fleet departs in November to the "Southern Ocean Sanctuary" and around May to the northwest Pacific.

4 Iceland's successful effort to rejoin the IWC has seriously disrupted business at two of the IWC's annual meetings.

5 Though Japan has rejoined the IWC with a reservation, in other international forums it argues against countries taking reservations to key decisions.

6 Canada, Maine and Iowa are the major suppliers and they continue to produce millions of pounds of lobster annually.

7 The chimpanzees are expected to move to their new homes sometime this spring or summer, as soon as the compound can be prepared to accommodate them.

8 Chimpanzees have been used as human surrogates in biomedical experiments for most of the 19<sup>th</sup> century.

9 The very dangerous and often lethal tests for the advancement of animal medicine would be best served by using chimpanzees.

10 Hanzie was used in the original Project Mercury tests including zero gravity testing.

**Ex. 6 Fill in the gaps with the appropriate preposition:**

1 Despite widespread international criticism, Japan continues to defy the international moratorium ... commercial whaling.

2 This commercial trade ... whale products would be the first in more than a decade.

3 In other words, it is once again a member of the IWC but does not wish to comply ... the current ban on whaling.

4 Iceland withdrew ... the IWC in 1992 and has abided by the IWC's moratorium on commercial whaling since 1990.

5 But, at an intercessional meeting on 14 October 2002, Iceland was finally voted ... .

6 The United Kingdom and Mexico have either lodged a formal objection ... this decision or are in the process of doing so.

7 Though Iceland has rejoined the IWC ... a reservation, in other international forums it argues against countries taking reservations to key decisions.

8 This is already having a huge impact ... the New York – Connecticut lobster industry.

9 The remaining 30 chimps were sent ... Primarily Primates in San Antonio, TX.

10 CCCC's chimpanzees range ... age from 6 to 40 years old.

**Ex. 7 Complete the sentences using the words in brackets:**

*(to import, to rejoin, moratorium, abide, to retire, key decisions, "safe haven")*

1 Despite widespread international criticism, Japan continues to defy the international ... on commercial whaling.

2 This sanctuary was established by the IWC in 1994 as an international ... for whales.

3 The Japanese government announced that it intends ... Norwegian whale meat.

4 Iceland was allowed ... the International Whaling Commission (IWC) with a "reservation" on the commercial whaling moratorium.

5 Though Iceland has rejoined the IWC with a reservation, in other international forums it argues against countries taking reservations to ... .

6 Iceland should now ... by the IWC's rules.

7 Even though it was the will of many people ... the "Space Chimps", it was the efforts of CCCC founder and director Dr. Carol Noon that made it happen.

### **Ex. 8 Find English equivalents:**

включение; прибыльный; Международный союз охраны природы и природных ресурсов; цели; возобновить; формальное возражение; международные дела; потребители; огороженная территория; согласие; дикие животные; ДНК; прокладывать дорогу; стягивать ремнем; репетиция; выводить на орбиту; полный успех; возвращаться; пресс-конференция; историческое событие.

### **Ex. 9 Give a summary of the text using the following phrases:**

the title of the text is ...; the text deals with ... (is devoted to ..., is about ...); the text stresses the importance of ...; the text further says ...; in conclusion the author says ...; concerning the problem.

## **UNIT 5**

### **THE FATE OF MANKIND**

#### **Ex. 1 Read and translate the text:**

#### **RESTORING THE EARTH**

Every year, tens of millions of acres of once fertile land around the world are becoming deserts due to uncontrolled land use and over cultivation by man. By the middle of the 21<sup>st</sup> century, many scientists are predicting that those areas, which receive an average of 10-to-20 inches of rainfall each year (semi-arid regions) will also become deserts due to global warming.

The desert covers 65 % of Israel, largely as a result of years of neglect and by other human and natural causes. At the turn of the 20<sup>th</sup> century, this ancient Holy Land, which had once been a lush vista of green forests, was a desolate wasteland barren with rocky hills and little or no vegetation. Since the establishment of the independent State of Israel in 1948, halting desertification (the process of turning land into desert) has been a top national priority.

Today, through the efforts of the Jerusalem-based Keren Kayemeth LeIsrael (KKL) organization, neglected countryside has been revitalized with the planting of over 200 million trees throughout the

arid region. What sets the efforts of the KKL apart from other similar tree-planting efforts worldwide is that the trees planted were done so by individuals from all over the world in honor of loved ones or others close to them. As the KKL states, “Our forests are living legacies populated by millions of trees dedicated to millions of friends throughout the world.” Not only are the trees planted by people devoted to the Holy Land, but they are planted by people devoted to the environment, heads of state, artists, religious leaders and tourists from all walks of life, religions, cultures and ethnic heritage.

These efforts, which began with the launch of KKL in 1901, have not only restored the beautiful vistas of the Israeli countryside, but they have significantly improved the air and land quality within environment.

Did you know...? Planting trees does not require more water for your landscape. Rather, the opposite is true. Trees not only help retain water in the soil, but they can also help keep the soil intact and healthy. This results in the retention of even more water so less watering is required. Trees also act as air filters to provide better air quality for both humans and wildlife.

Those areas, which receive an average of 10-to-20 inches of rainfall each year (semi-arid regions) will also become deserts due to global warming.

## **EARTH’S ULTIMATE FATE**

It happens all around us in the universe. Stars, many like our own sun, are shrinking, exploding and eventually dying. Everything dependent on these stars suffers a related fate. It’s the laws of physics and natural evolution of our universe.

The American Association on the Advancement of Science says Earth will ultimately either “dry up, burn up or freeze” based on continuing scientific research on the Earth’s ultimate fate. This is because the Earth’s sun is becoming brighter and hotter, on its way to becoming a white dwarf ... billions of years from now. But even before then, the Earth’s temperature will rise to the point where the planet will begin to lose its water.

In an interview with MSNBC, Pennsylvania State University Professor of Geosciences, James F. Kasting, said that astronomers have long known that the sun would meet this fate – and Earth along

with it, and that it could happen in five billion years. However, a more pessimistic scientific model indicates the oceans could evaporate in about 1.2 billion years.

Dr. Kasting explains that the warmer temperatures will cause vital carbon dioxide gases – essential for plant life – to be absorbed by the oceans. Plant life will eventually die off as will all life dependent on plants for survival.

In yet another scenario, according to the MSNBC report, the sun may expand into a giant ball of burning hydrogen as it exhausts its fuel, incinerating the inner planets of Mercury, Venus, Earth and Mars. Before that, in about 3.5 billion years, the sun will be hot enough to burn up all life forms on Earth, with the exception of some bacteria. And yet, according to University of Michigan Physics Professor Fred Adams, Earth could be jettisoned out of its orbit into deep space due to the disruption of the sun's gravity and the gravity of a passing star. In this case, the Earth would freeze as it spins through space without its sun.

This is a simple description of the natural evolution of our planet and solar system, like all others in the universe. While this fate will eventually meet all stars and planets, new solar systems are being born that will go through the same cycles. And a billion years can allow for some remarkable and fascinating developments that will ensure the perpetuation of Earth's life forms within our vast universe. As NASA's Hubble Telescope has confirmed, the expansion of the universe, which has been known since the 1920s, is likely to continue forever.

## **COAL AS FUEL OF THE FUTURE**

Imagine traveling over nine times the speed of sound in a hypersonic aircraft powered by ... coal.

It is true that hypersonic flight is being ushered into our future with such aeronautic innovations as NASA's unpiloted X-43 Hypersonic flight vehicle, which will ultimately result in larger, manned aircraft with larger engines.

But the major obstacle for such high-speed flight is heat, particularly the amount of heat exposed to an aircraft's engines and the fuel that powers them.

While today's jet engines are exposed to heat of roughly 310–320 degrees Celsius (600 degrees Fahrenheit), hypersonic speeds

can introduce these engines to temperatures over 480 degrees Celsius (900 degrees Fahrenheit).

Not only is coal-powered flight possible, according to scientists, but it may be available within a few years, according to The Energy Institute at Pennsylvania State University.

X-43A Hypersonic Experimental Vehicle, or “Hyper-X,” was developed to fly at speeds from Mach 7 up to Mach 10 (Mach 1 represents the speed of sound). Heat associated with such flight can cause problems for conventional jet fuels and coal may hold the answer to the fuel challenge.

Funded for over nine years by the US Air Force, research at Penn State University has concluded that coal is more suited for high velocity flight because the conventional petroleum-based jet fuel cannot withstand the intense temperatures associated with supersonic flight. Petroleum-based fuels will breakdown under intense heat.

“Solid coal itself could not of course be used in these applications, but coal-derived liquid fuels most certainly could be used,” said Dr. Harold Schobert, Director of the Energy Institute, in reference to the possibility that coal could become the primary fuel for hypersonic flight.

Coal-based fuels, however, have shown that they can withstand much more intense heat than petroleum fuel, and they have already been put to the test by the Penn State research team. Coal fuel has been subjected to temperatures in excess of 800 degrees Celsius (approximately 1,450 degrees Fahrenheit), and plans are to continue experimenting with higher temperatures. It is expected these fuels will be tested in actual engines by 2005, if not sooner.

## **COAL POWER FOR THE FUTURE**

It seems logical that coal would be used as the predominant fuel of the future until other non-petroleum-based substitutes are fully developed. Coal burns cleaner, despite the false image that associates coal with the dingy, smog-choked air of the old coal-burning cities and towns, particularly during the Industrial Revolution.

Furthermore, according to The World Coal Institute (WCI), “technologies have been developed to improve the environmental performance of coal-use techniques” and that the efficient burning of coal-based fuels results in the release of fewer pollutants into the

atmosphere. All fossil fuels produce greenhouse gases; but greenhouse gases from coal contribute to less than 20 % of any enhanced greenhouse effect.

Currently, coal is the primary source of fuel for electricity generation worldwide, according to WCI. Over 62 % of the world's total coal production is used for about 37 % of the world's electricity.

Electricity needs are on the increase worldwide at an alarming pace for cities such as this one in India. India, which derives 75 % of its electricity from coal-based fuel, is the third largest producer of coal.

Other uses for coal are used for steel and cement production, commerce, public services, agriculture and other industries, as well as domestic use. Gas (16 %), oil (9 %), nuclear (17 %), and renewable energy sources (21 %) supply the rest of the world's electricity needs.

Total world production of hard coal is about 3,700 metric tons, with China, the United States, India, South Africa, Australia and Russia topping the list of coal producers. Coal provides the majority of the electricity needs for countries such as Poland (96 %), South Africa (90 %), China (81 %), Greece (70 %), India (75 %), USA (56 %), and Germany (51 %).

If coal-based fuels could be relied on more heavily for domestic and commercial transportation, such as airlines and automobiles, all countries around the world can be confident that their coal-based energy resources would be secured, and dependency on the more centralized petroleum-based production industry would be significantly reduced. According to WCI, this would mean that our energy needs can be assured and prices would remain stable and competitive with other fuels.

Scientists have confirmed that there are over 200 years of coal resource availability worldwide, far exceeding current known and available petroleum reserves.

“In terms of BTUs [British thermal unit – unit of measurement used to express the heat contained in energy resources] in the ground, there is plenty of coal,” – said Dr. Schobert. – “But the “killer issue” on coal is that it produces more (carbon dioxide) emissions per BTU of energy than the other major fuels.” However, “technologies are available or under development to address (these issues).”

Still coal remains our safest, most viable and dependable energy resource to meet our enormous energy needs. When asked if there is any

source of energy that could replace coal as our primary energy source within our lifetimes, Dr. Schobert replied, “There is only one: nuclear.”

What is Coal? Coal is an organic, sedimentary (produced from sediments) rock composed primarily of carbon, hydrogen and oxygen.

Over half of the world’s coal reserves are of the bituminous variety, such as is being mined here in Queensland, Australia. Only anthracite coal is harder than bituminous.

Coal was formed from pre-historic vegetation that has been under the heat and pressure within the earth. After going through physical and chemical changes over millions of years, the vegetation was converted into coal. Such processes did not begin until land plants evolved some 400 million years ago.

Peat was the first stage of coal to form, which was eventually converted into lignite or brown coal. After millions of more years of heat and pressure from within the earth’s surface, bituminous or hard coal evolved.

Ultimately, the bituminous coal transforms into an even harder form called anthracite coal.

Anthracite has a higher carbon and energy content and a lower level of moisture than bituminous coal, and is used for domestic and industrial purposes, including smokeless fuel. Bituminous coal is primarily used for power generation, and the production of cement, iron and steel.

Did you know ...? The largest environmental threat from coal is not in its use, but in mining it. Strip mines, such as the technique that had been heavily used in West Virginia, essentially strip the top layers of earth away to expose the coal reserves underneath. This has resulted in devastation to natural habitats, natural growth and water supplies on the surface. Over time, however, coal-mining companies have worked diligently to reduce the environmental impact of strip mines by reclaiming the land with original matter and re-seeding the mined surface. This is still a highly controversial practice and strip-mining bans are placed or sought in many regions, including such Federal restrictions in the Appalachian Mountains.

Also ... The commercial airline industry should be able to use coal-based fuels to power current commercial aircraft in the not too distant future. Not only would this technological enhancement provide deeper and more stable reserves than petroleum-based fuels, but it would

provide less atmospheric pollution. The aircraft would not fly faster, but they would fly cleaner.

**Ex. 2 Answer the following questions:**

1 Why are tens of millions of acres of once fertile land around the world becoming deserts every year?

2 What sets the efforts of the KKL apart from other similar tree-planting efforts worldwide?

3 What does planting of trees result in?

4 When could the oceans evaporate?

5 Coal-based fuels have shown that they can withstand much more intense heat than petroleum fuel, can't they?

6 What is the difference in producing greenhouse gases by fossil fuels and by coal?

7 What other things is coal used for?

8 From what was coal formed?

9 What purposes is anthracite used for?

10 What would coal-based fuels provide us with?

**Ex. 3 Match the equivalents:**

a) semi-arid;

desertification;

retention;

incinerate;

jettison out of its orbit;

solar system;

withstand;

coal;

emissions;

b) уголь;

выбросы;

полупустынный;

выдерживать, переносить;

сжигать;

солнечная система;

опустынивание;

удерживание, сохранение;

сойти со своей орбиты.

**Ex. 4 Match the equivalents:**

а) домашнее использование;  
сеять повторно;  
топливо на нефтяной основе;  
карьер;  
твердый уголь;  
битумный;  
запасы нефти;  
загрязнение атмосферы;  
технологическое улучшение;  
физические и химические изменения;

b) domestic use;  
physical and chemical changes;  
a strip mine;  
solid coal;  
bituminous;  
re-seed;  
petroleum-based fuels;  
petroleum reserves;  
atmospheric pollution;  
technological enhancement.

**Ex. 5 Are these statements true or false?**

- 1 Trees do not help retain water in the soil.
- 2 Stars, many like our own sun, are shrinking, exploding and eventually dying.
- 3 Earth will ultimately either “dry up, burn up or freeze”.
- 4 A more optimistic scientific model indicates the oceans could not evaporate in about 1.2 billion years.
- 5 The sun may expand into a giant ball of burning hydrogen.
- 6 Two billion years can allow for some remarkable and fascinating developments that will ensure the perpetuation of Earth’s life forms within our vast universe.
- 7 It is true that hypersonic flight is being ushered into our future with such aeronautic innovations as NASA’s piloted X-43 Hypersonic flight vehicle.
- 8 Not only is coal-powered flight possible, according to scientists, but it may be available within a few years.

9 Greenhouse gases from petroleum contribute to less than 20 % of any enhanced greenhouse effect.

10 There are over 200 years of coal resource availability worldwide.

**Ex. 6 Fill in the gaps with the appropriate preposition:**

1 This results ... the retention of even more water so less watering is required.

2 It happens all around us ... the universe.

3 Plant life will eventually die ... as will all life dependent on plants for survival.

4 But the major obstacle for such high-speed flight is heat, particularly the amount of heat exposed ... an aircraft's engines and the fuel that powers them.

5 Coal is more suited ... high velocity flight because the conventional petroleum-based jet fuel cannot withstand the intense temperatures associated with supersonic flight.

6 Coal fuel has been subjected ... temperatures in excess of 800 degrees Celsius.

7 Dependency ... the more centralized petroleum-based production industry would be significantly reduced.

8 Bituminous coal is primarily used ... power generation.

9 The largest environmental threat from coal is not ... its use.

10 The commercial airline industry should be able to use coal-based fuels to power current commercial aircraft ... the not too distant future.

**Ex. 7 Complete the sentences using the words in brackets:**

*(a white dwarf, solar systems, electricity, a desolate wasteland, hard coal, at speeds, in honor of)*

1 This ancient Holy Land, which had once been a lush vista of green forests, was ... barren with rocky hills and little or no vegetation.

2 The trees planted were done so by individuals from all over the world ... loved ones or others close to them.

3 The Earth's sun is becoming brighter and hotter, on its way to becoming ... .

4 While this fate will eventually meet all stars and planets, new ... are being born that will go through the same cycles.

5 X-43A Hypersonic Experimental Vehicle, or “Hyper-X,” was developed to fly ... from Mach 7 up to Mach 10.

6 Over 62 % of the world’s total coal production is used for about 37 % of the world’s ... .

7 Total world production of ... is about 3,700 metric tons.

**Ex. 8 Find English equivalents:**

культивация почвы; заброшенный; просеки; поливка; законы физики и естественной эволюции; сохранение жизни на Земле; топливная проблема; ошибочное представление; производитель; централизованный; стабильный; конкурентоспособный; возможность использования; жизнеспособный; лигнит; бездымный; угроза; запасы воды; ограничения; обуславливать.

**Ex. 9 Give a summary of the text using the following phrases:**

the title of the text is ...; the text deals with ... (is devoted to ..., is about ...); the text stresses the importance of ...; the text further says ...; in conclusion the author says ...; concerning the problem.

РЕПОЗИТОРИЙ ГГУ ИМ.

## Литература

1 Современные экологические проблемы: сб. текстов на английском языке / авт.-сост. : М. Н. Макеева, Л. П. Циленко, А. А. Гвоздева. – Тамбов: Изд-во Тамб. гос. техн. ун-та, 2004. – 96 с.

2 Swan, M. Practical English Usage / M. Swan. – 2-d ed. – Oxford: Oxford University Press, 1995. – 221 p.

3 Thomson, A. J. A Practical English Grammar / A. J. Thomson, A. V. Martinet. – 2-d ed. – Oxford: Oxford University Press, 1976. – 246 p.

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