

Учебное издание

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Supplementary Reading

Учебное пособие

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Учебное пособие предназначено для аудиторной работы студентов всех специальностей в качестве дополнительного материала к учебнику.

Тексты соответствуют тематическим разделам базового учебника, материал подобран с учетом информационной новизны.

Основная цель – развитие активных навыков устной и письменной речи в объеме, необходимом для элементарного общения на английском языке.

Разные виды чтения текста способствуют увеличению скорости и развитию гибкости чтения. Упражнения в лингвистической догадке пополняют и активизируют потенциальный словарь студента.

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drug penicillin, after the name of the blue-green mould. Penicillin has become one of the best weapons against bacteria. It really deserves the popular name of a "wonder drug".

Almost every day we hear of the discovery of still other wonder drugs. There is great hope that one may soon be found that cures or prevents dangerous diseases, and it may even turn out that cancer will some day be beaten by a chemical. Thanks largely to penicillin, sulpham and the other wonder drugs, the number of deaths from pneumonia, blood poisoning, appendicitis and other serious illnesses has been cut down to a minimum.

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UNIT I EDUCATION

THE UNIVERSITY OF OXFORD

Oxford University was founded in the 12th century. It is one of the largest and most ancient universities of England.

Oxford University is practically not a single angle University, but a collection of colleges, each self-governing and independent. The University is merely an administrative body which organizes lectures, arranges examinations, grants degrees, etc.

Oxford University consists of 25 independent colleges, including four colleges for women.

The administrative body of the University consists of the chancellor who is elected for life, the vice-chancellor, who is in practice the head of the University and is appointed annually by the chancellor, and the two proctors, whose job is to maintain discipline, and who are appointed annually by two of the colleges in rotation.

The University has laboratories and research institutes in all branches of science and engineering, a well-equipped library and many other educational facilities.

As the lectures are organized not by the colleges but by the University, any member of the University student body may attend those lectures and use the educational facilities provided by the University; the students of the colleges are the students of the University as well.

In every college there are students of various specialties but each student naturally follows his own course of study. It is considered that a student gains very much from living among those who represent other specialties.

As a rule, admission to Oxford University is to certain extent restricted. The students have to pay for their tuition, examinations, living accommodations, the use of libraries, laborato-

ger of getting "blood poisoning". Doctors wore their ordinary dusty street clothes when they operated, and simply rinsed off their instruments with water afterwards. Lister sprayed the air of the operating rooms with carbolic acid and made sure that a surgeon washed his hands, instruments and bandages with carbolic acid solution, too. The number of cases of blood poisoning dropped off at once. Lister had discovered the use of antiseptics and also proved that Pasteur was right about germs being the cause of disease.

Lister and other scientists began to wonder if chemicals might be used to destroy germs inside the human body as well as outside it.

After more than six hundred failures, a German chemist Paul Ehrlich finally made a drug that could kill certain bacteria without harming the patient. He not only made one of the greatest discoveries in the history of medicine, but also invented a new word to describe this kind of treatment. The word is chemotherapy meaning "curing by means of chemicals".

Before the time of Dr. Ehrlich's discovery, doctors believed that drugs could be obtained only from plants, but now they began to search for other mineral drugs, especially among the many coal-tar dyes. They found remedies for many diseases that were considered incurable up to that time.

One day Dr. Fleming's assistant brought him a plate on which a colony of dangerous bacteria was being grown. "This plate is spoiled," said the assistant, "some mould accidentally formed on it and I'll have to throw it away." Dr. Fleming was ready to agree. Then he looked at the dish again. "Hold on!" he said excitedly. "The germs all around the mould are gone! Whatever destroyed them must have come from that fluffy blue-green mould." There was much work still to be done. More scientists joined in the work. Finally they found that the mould got its germ-fighting power from a chemical that it produced in very small amounts. It was decided to call the new

During his researches, Backster also found that there was a special bond between the plant and its keeper. Plants could react to their keeper's thoughts, even when the keeper was in another room. He found that his plants could react to his thoughts when he was eighty miles away!

Many people have said that plants grow better if they are treated gently. There has always been the old wives' tale that talking to plants helps them to grow better. In view of the sensitivity and awareness in plants that Backster has discovered, it seems there may be some truth in this. The ability to grow plants, to have green fingers, may be more than just Juck!

CHEMICALS THAT CURE

It is important to keep these tiny creatures from entering the body with our food, with the air we breathe through cuts in the skin, because germs cause disease. Most germs are really very small plants called bacteria. Unlike ordinary plants, they are not green, and some are so small they cannot be seen even with the most powerful microscopes.

Not all bacteria are harmful. There are bacteria that help plants grow, others that get rid of dead animals and plants by making them decay, and some that live in soil and make it better for growing crops. Still other kinds of bacteria are useful in making cheese. In fact, all bacteria do their work by causing chemical changes and that is why the biochemist is interested in them.

It is hard to believe that until less than a hundred years ago people didn't know that diseases were caused by germs. Then Louis Pasteur, a French chemist, found that bacteria were everywhere, and that when certain kinds entered a plant or animal they were able to grow and cause disease there.

In England a surgeon named Joseph Lister maintained that such bacteria might be the reason for so many infections and deaths after surgical operations. In those days, anyone who went to a hospital for even a minor operation was in great dan-

ries, etc. Very few students hold scholarships from public or private funds.

Oxford University is known for its tutorial system. The individual tuition provided by these Oxford colleges is, perhaps one of the main reasons why admission there is so eagerly sought for.

Every student has a tutor who practically guides him through the whole course of studies. The tutor, more or less, plans the student's work, suggests the books he should read and sets the work for him to do, for example, lectures to attend, an essay to write, etc. Each week the student goes to his tutor, and the tutor discusses with him the work he has done, criticizes in detail the essay he has written and sets him the task for next week's work.

A characteristic feature of Oxford University is that many traditions of the Middle Ages are still current there. One of them is that the students have to wear gowns at lectures, in the University library, in the streets after dark, for dining in the college hall and for official visits to members of the staff.

Many eminent world-known scholars and scientists have been educated at Oxford.

FURTHER EDUCATION

Ex. Fill the gaps.

The effective running of businessto a large extent upon the organization of a country's human resources. Such factors as size..... and sex of the population may have a considerable influence on business

As people are a.....resource for business, providing for their training needs is essential in ensuring that.....resources are used..... Much is done to prepare people for..... and provide a means of learning,

Further education offers a wide.....of courses for students, both part-time or full-time, mostly of a vocational na-

ture. Students are often supported by their employers who.....pay fees or.....them to stay away from work.

Many Universities and.....have developed links with business and industry in..... years and poly-technics were established, to develop these links. The Open University and Open College were founded in order to make further and higher.....available to students on part-time basis. The Open College enables people to ... in a variety of skills using media and local centers.

Two main forms of training.....be undertaken whilst in employment: on-the-job-training at the place of work or off-the-job-training at a specialist centre or local college. Many..... now leave school at 16 to take a place on a Government sponsored Youth Training Scheme. A two-year course is provided for people.....16, and a one-year course for those of 17. Both Schemes combine planned work experience with "aof time spent away from the job-at a college.

Some forms of off-the-job-training are; usually essential for more advanced' jobs or for more theoretical aspect of skill. Off-the-job-training has the advantage of allowing the.....the benefit of special training under suitable conditions but may be costly and makes it.....to remove from the workplace for a time.

Vital, trainee, recent, colleges, necessary, depends, age, period, may, education, human, can, effectively, pupils, allow, range, aged, train, work.

Boredom Button

In most schools and universities teachers give their students marks for their work. All students hate a "D" and are happy if their teachers give them an "A." Now, at one American University the students and the lecturers must work hard if they want good marks.

decided to burn one of the plant's leaves. To his amazement, as soon as he thought of this, a reaction was shown on the polygraph. And yet, he hadn't actually done anything! It seemed that the plant must be reacting to his thoughts.

Backster decided to expand his experiments. He discovered that the plant was aware of other life forms, not just itself. He tried putting live shrimps into boiling water, and each time one of the shrimps was killed, the plant showed a violent reaction on the polygraph. When he put dead shrimps in the water, there was no reaction at all. At this stage, Backster wondered if the plant was reacting in sympathy to his own thoughts. He set up an automatic version of the shrimp experiment, in which shrimps were killed at random. He went away, so that he could not be influencing the plants. They continued to react when each shrimp was killed.

When he was carrying out further experiments, Backster discovered that one plant, a philodendron, had become especially attached to him. It reacted in a very distressed way if Backster ever had to pressurize it for a response. As a result of this, he asked his assistants to pressurize it if this was necessary. The plant then began to react in a distressed way if the assistant approached (as this meant a threat to the plant's safety) but calmed down again whenever Backster himself came into the room.

Backster even discovered that plants, like human beings will faint or pass out if very distressed. This discovery was purely accidental. One day a woman scientist came to watch the experiments, and for some reason that he couldn't work out, Backster was unable to get the usual responses. It was as though the polygraph had broken down. Later, Backster discovered that, as part of her work, the woman killed and roasted plants to analyse the remains. He decided that his plants had fainted with fear.

back as food to us humans – an expensive method of producing food. Remember – there is only about one acre of fertile land in the world per person. It is quite clear, therefore a little dairy produce can give us all the vitamins and minerals we need. However a word of warning – after years of flesh-eating, giving up animal products should not be too sudden. Dairy products – milk, butter, cheese and eggs – should be used until the body is accustomed to the new diet.

Questions for discussion:

With world population increasing should we all now become vegetarians?

People are producing substances from soya beans that taste like and look like meat. A waste of money and technology?

SENSITIVE PLANTS

Clee Backster was a C.I.A. expert on interrogation who specialized in lie detection. One day, when he was watering the plants in his office, he began to wonder if it would be possible to see how a plant's leaf was affected when water was poured on its roots, and how fast any reaction would show. Backster decided to use a polygraph, a device which he used a lot in his work. Attached to the human skin, a polygraph shows any variation in electrical impulses. The person is asked carefully worded questions and an expert can tell from the electrical impulses recorded when the person is lying.

Backster selected one of his plants, and attached the polygraph's electrodes to a leaf. When he watered the plant, the reaction on the polygraph was similar to that of a human experiencing a brief emotional stimulus. The questions he had used on people normally involved some kind of threat to the person's safety. Backster wanted to produce a similar state in the plant, and to do so he dipped one of the plant's leaves in his cup of coffee. There was no reaction, so he decided to go further. He

During classes the students give their lecturers marks. Each desk has a "boredom button" on it. If a student thinks that the lecture is boring he can press the special button. When he does this, he switches on a light at the back of a classroom. There is one light there for every student. The lecturer can look at the lights and he can see if his students think the class is interesting or boring. The lecturer cannot see which students are pressing the buttons. So the students can be completely "honest".

If too many lights come at the back of his class, a lecturer knows that he must do something quickly and make the class more interesting. (From "Modern English")

Answer the questions:

1. What do you think the lecturers think about the "boredom button"? Do you think it's a good idea for universities?
2. Read and discuss.

A Futurologist Thinks That...

Long before the year 2020, the entire antiquated structure of degrees, exams and credits will be discarded (отбрасывать). No two students will be taught in exactly the same way. In the educational world of tomorrow the centralized work place will also become less important. Just as economic mass production required large numbers of workers to be assembled in factories, educational mass production required large numbers of students to be assembled in schools. This itself, with its demands for uniforms, discipline, regular hours, attendance checks and the like, was a standardizing force. Advanced technology will, in the future, make much of this unnecessary. A good deal of education will be conducted in the student's own room at home or in a dorm (hostel), at hours of his own choosing. Vast (общирный) libraries of data (information) will be used by students through a computerized information retrieval system (система получения информации через ЭВМ). With his own

tapes and video units, his own language laboratory and his own electronically equipped study room he will be freed, for much of the time, from the unpleasantness of the classroom.

Answer the questions:

1. Have you ever asked yourself why people who want to study have always been brought together since the earliest times? Give all the possible reasons you can think of.

2. How were students always taught? By whom were they taught? What were the functions of a teacher? Can a teacher be replaced by a machine?

3. Do you think that the educational world of tomorrow will be greatly changed? Why? Do you think that in future students will be assembled in school? Do you think they should be assembled? Give your reasons. Computers will no doubt be used in education more than they are used today. What kinds of teaching aids (учебные пособия) will be used? Will the character of studies be changed by computers? Will a large part of a student's time be freed? Give your reasons.

Move the Body–Move the Brain

We all know that exercise is good for you. However some astonishing new discoveries about the effect of exercise on the central nervous system were made recently by medical experts.

Last year a team of doctors did a series of tests on some of the competitors in a race. It was discovered that during exercise a morphine-like substance is released into the blood stream.

If this theory is correct and exercise can be used as a way of elevating (возвышать) the mind, creative artists should take note as their type of work can often result in long periods of mental exhaustion (истощение).

Laurence Olivier, the actor, did weightlifting for an hour before he went on stage because he felt it enabled him to give a better performance.

Man's body is more like those of frugivorous mammals (such as our cousins the apes) than like those of carnivorous and even omnivorous animals. Why? For millions of years Man must have lived on fruits, nuts, grains and leaves and so developed that kind of digestive system. Perhaps the more we get away from this diet towards meat-eating, the less likely we are to be healthy. Cancer, tuberculosis and heart disease are certainly more common in meat-eating communities.

But if it is so unnatural for Man to have an omnivorous diet, why do we eat (and enjoy) meat at all? One theory is that Man may have started eating the flesh of animals during the Ice Ages when most of the vegetation was destroyed. Today the Eskimos still live almost entirely on flesh – they have no alternative!

Vegetarians claim that the basic food elements which we need to grow and be healthy come from, the earth, air and water through vegetation. Therefore they argue that by eating meat we are getting these foods secondhand after they have been digested by the animal. (It is interesting to note that Man does not eat carnivorous or even omnivorous animals. It seems we do not enjoy receiving these food elements third Hand. Getting food secondhand through animals also means getting chemicals and hormones used in farming and feeding animals. In fact it has been said that the average American contains so much DDT – a dangerous chemical – that he is not fit to be eaten!)

Meat is generally thought to be a "first-class" protein, but in fact it contains more water than protein, and is a very poor source of all the other food elements – minerals, vitamins and carbohydrates. Weight for weight, the soya bean has more of all the essential amino-acids – and is, of course, much cheaper.

It is worth considering how wasteful meat-eaters are with land. A meat-eater needs about three times as much land to support himself and his animals as a vegetarian does. For every 45 kilos of dry food eaten by cattle only 1.8 – 7.3 kilos come

Ex. 1. Correct the following statements.

Today there are very few people who are proud of being able to cook well.

The early cave man ate his food roasted.

Primitive peoples knew nothing about the forms of cooking that we are practicing now

The chief reason for cooking food is to make it taste better.

Greek civilization didn't advance cooking at all.

Ex. 2. Choose the word.

The American Indians cooked by:

Broiling, roasting, frying, baking, stewing, boiling, steaming, parching, drying.

Ex. 3. You attended a very interesting lecture on cooking and made some brief notes to remember it better. Exchange the information you've got with your friend who takes a special interest in cooking. Use your notes. Begin every new sentence with the words: The lecturer said (noted, remarked)

DID YOU KILL YOUR DINNER?

The word "vegetarian" was coined in about 1840 to mean people who lived without killing for food, either for moral or health reasons, or both. But the practice is much older than that.

The priests of ancient Egypt were forbidden flesh-foods. Many Eastern religions have always recognized the great importance of all life and the need to live without causing suffering. It is interesting to note that many early Christians also believed this. Modern yoga shares the belief too — yogis say that a truly spiritual life cannot be lived on flesh-foods.

Greek philosophers recommended vegetarianism and famous people who have practised it in the past include Leonardo da Vinci, Tolstoy and Voltaire, Milton, Sir Isaac Newton, General Booth, Sir Isaac Pitman, Tagore and Bernard Shaw. Surely this proves that mental activity does not depend on flesh-foods. What then are the arguments that might stop us eating meat?

Edna O'Brien, the Irish novelist, enjoys yoga and ninning. She believes that any exercise that moves the body must also move the brain!

Answer the questions:

1. What discovery was recently made by medical experts?

2. What was discovered with the help of a series of tests on some competitors in a race? 3. In what way can exercise be used by creative artists?

Moscow University

An important part in the development of higher education in Russia was played by Moscow University which was founded in 1755. It was not by accident that Moscow was chosen as the place for the first Russian University. Moscow was situated in the centre of the country and it was easier for students to come there from all parts of the country, besides, life in the older capital was cheaper than in St Petersburg.

Moscow University was opened on April, 26 (May, 7) 1755 in the three-storied building where the State Historical Museum is situated. But it was too small for the University and several houses in Mokhovaya Street were bought the next year. In 1786 the sum of 125,000 roubles was allotted by the government to build a new University building. It was built by a famous Russian architect Kazakov in Mokhovaya Street. The University had three faculties: philosophy, law and medicine. The philosophy faculty was considered to be preparatory and study there was obligatory for all students. Philosophical, natural and philological disciplines were studied for 2 or 3 years. Special attention was paid to "the history of the Russian empire". After finishing the courses at the philosophy faculty, students could choose to study either law or medicine. At the law faculty students were taught civil law, commercial law, military law and law of the sea. Each student could work independently

according to an individual plan of studies which was based on the general university curriculum and he could study the disciplines which he had chosen in any order he wished. The University also contained a library, a mineralogical museum, a "natural" museum, an anatomical theatre, a chemical laboratory, an astronomical observatory, etc. In accordance with the University Charter (устав) debates among students were organized. They were supervised by professors and "all lovers of the arts and sciences" (гуманитарные и естественнонаучные дисциплины) were welcome to these debates. The best students were awarded gold and silver medals at the end of each year. After graduation they were sent abroad to perfect their knowledge.

All lectures were given in Latin. Professor Popovski\ who gave lectures on philosophy and literature was the first to propose giving lectures in Russian stating that "there exists no idea that can't be properly explained in Russian". But lectures in Russian were not allowed until 12 years later in 1767.

The number of students at the University was small. Thus in 1755 there were only 61 students. Later their number gradually begin to grow.

Answer the questions:

1. When was Moscow University founded? Why was Moscow chosen to be the home of the first Russian University? When was the University opened? Where was it situated? Where was it moved a year later? What sum was allotted by the government for the new building? Who was it designed by? What disciplines were studied at the philosophy faculty? What discipline was paid special attention to? What subjects were taught at law faculty? How was a student's work organized? How were debates organized? Who were they supervised by? Who was welcome to these debates? What were the best students awarded at the end of the year? Where were they sent after graduation? What for? In what language were lectures giv-

FROM THE HISTORY OF COOKING

Today cooking is quite an art. There are great chefs, famous restaurants, thousands and thousands of cookbooks, and millions of people who are proud of being able to cook well.

Yet there was a time when man didn't even cook his food» The early cave man ate his food raw. Even after fire had been discovered, the only kind of cooking that took place was to throw the carcass of an animal on the burning embers.

It was only gradually that man learned to bake in pits with heated stones, and to boil meats and vegetables, dropping red-hot stones into a vessel of water.

Greek civilization advanced cooking to a stage of great luxury. In ancient Athens, they even imported food from distant lands, and the Romans had magnificent banquets in their days.

Then during the Middle Ages, the art of cooking declined and the only place where fine cooking was found was in the monasteries. When good cooking was revived again, Italy, Spain, and Prance led the way. These countries were proud of having a more refined taste than England and Germany, where the people ate chiefly meat.

A curious thing about cooking is that many primitive peoples knew almost every form of cooking that we are practicing now. They just did it more crudely. For instance, we cook by broiling, roasting, frying, baking, stewing or boiling, steaming, parching, and drying. The American Indians actually knew all these ways of cooking, except frying.

You may think that the chief reason for cooking food is to make it taste better. Actually, the changes cooking produces in food help us to digest it better. Cooking food also guards our health, because the heat destroys parasites and bacteria which might cause us harm.

tennis.

- a. pound
- b. game
- c. play

8. To get something high, you climb a

- a. ball
- b. peach basket
- c. ladder

Ex. II. Find the right answer.

1. James Naismith

- a. invented a gym
- b. invented basketball
- c. liked peaches

2. The first game of basketball

- a. had peach baskets
- b. was like soccer
- c. was in Canada

3. Today, basketball is

- a. not an Olympic sport
- b. only played in the United States
- c. an international sport

Ex. III. Change the wrong word.

There were ten men on each team.

They used a gym ball.

Naismith was American.

They put peach balls on the gym wall.

Barney Sedran was one of basketball's first players.

Players must climb up and down the court the whole game.

en? When were lectures in Russian allowed?

2. Where is Moscow University situated now? Who is it named after? What faculties are housed in the old building? When was the new university building built?

Ex. Read and discuss the following text
Academy and Sport

When Helen was only twelve years old (long before she ran away with Paris to become the cause of the Trojan War, she was abducted (похищена) by Theseus, who hoped eventually to marry her. But her brothers, Castor and Pollux, went in search of her. It was a man named Akademos, who showed them the place where Helen was hidden and won for himself an honorable if not particularly famous place in Greek mythology.

The Academia, a park and gymnasium (гимнастический зал), a place where Greek youths met for exercise and discussions, located near Athens Афины), was named in honour of the legendary hero Akademos. It was there that Plato (Платон) established his school, which is, in name at least, the grandfather of all modern academies.

As we see, Greeks never separated sports from studies. Yet, when a famous American writer of the 19th century Ambrose Bierce wrote his satirical 'The Devil's Dictionary' («Словарь сатаны») he gave the following definitions of these words:

Academe. An ancient school where morality and philosophy were taught.

Academe (from Academe). A modern school where football is taught.

Answer the questions:

1. Where was the Academia located? Who was it named after? What definitions of academy did A. Bierce give in his "Dictionary"? 2. Explain why studies and sports are always connected in educational institutions. 3. Explain why A. Bierce gave his ironic definition of academy.

Ex. Read and discuss the following texts

Be ready to talk about them in class emphasizing the details you find most exciting and unusual.

Oxford

Oxford is like London: it is international, it is old and it has great charm. It is also a town that grew up near the River Thames.

Oxford is international because people from many parts of the world come to study at its university. They join the university "family" that has more than 9,000 members.

The city of Oxford is old and historical. It has existed since 912. The university was established in the 12th century. The oldest of the twenty-seven men's colleges is University College. Some of the other old colleges are Merton College, Magdalen College, and New College.

You can see the charm of Oxford in the green fields and parks which surround the city and you can see it in the lawns and gardens which surround the colleges.

You can see the charm of Oxford in the River Thames and its streams which pass near the city. Punting (punt плоскодонка) is a favorite sport among the students at Oxford. It is a very peaceful sport and helps you to do a lot of thinking – especially if you are studying for an examination!

When you go to Oxford, there are two things you must do:

Go to the top of the Radcliffe Camera (next to the Bodleian Library) and look out across the city.

Stay up till midnight and listen to Great Tom, the bass bell at Christ Church, which tolls 101 times each night.

Cambridge

My visit to Cambridge has been an unusual experience. From whatever country one comes as a student one cannot escape the influence of the Cambridge traditions — and they go back so far. Here, perhaps, more than anywhere else, I have felt

200 pounds. But one of basketball's great players was Barney Sedran. He played from 1912 to 1926 and is in the Basketball Hall of Fame. He was only 5 feet 4 inches tall and 118 pounds!

Today, basketball is an international sport. In America, the National Basketball Association (NBA) has some of the best players in the world. Basketball is also an Olympic sport today. In the Olympics, the best teams from many countries play to show they are the best.

Ex. I. Complete the sentences.

1. A hall with ropes and bars for gymnastics and sports is a
 - a. gym
 - b. school
 - c. basketball
2. A group of people who play together is a
 - a. game
 - b. team
 - c. ladder
3. Another word for inside a building is
 - a. winter
 - b. Olympics
 - c. indoors
4. A sport that people play in every country in the world is
 - a. Canadian
 - b. international
 - c. fast
5. The name of a fruit which is round and juicy is a
 - a. peach
 - b. ball
 - c. basket
6. Basketball players run up and down the
 - a. basket
 - b. court
 - c. ball
7. You can have a ... of basketball, soccer, football, and

NUMBER SYSTEMS

Number names were among the first ... used when people began to talk, but it has taken thousands of ... for people to learn how ... numbers or the written figures which we call "numerals".

In early day's people ... on a scale of three or four instead of ten as we have now. Later they found it more ... to count by ten, using the fingers of both

When people first ... to use numbers they knew only one way to work with them that was to count. Later they found out how to add, and do other ... with numbers. They invented special devices to make computations ... especially in dealing with ... numbers.

The most developed of such... is the computer.

Operations, to use, years, large, earlier, words, devices, counted, convenient, began, hands.

Basketball

James Naismith invented basketball in 1891. Naismith was a Canadian, but lived in the United States. He was a teacher at Springfield Training School in the state of Massachusetts. He taught sports and found there were no interesting games to play indoors in the winter months. So he thought of a game.

Naismith's students played the first game of basketball in the Springfield gym in 1891. There were nine men on each team. They used a soccer ball. They put peach baskets on the gym wall. The goal or purpose of the game was to throw the ball in the basket. That is why he called the game basketball. A man with a ladder went to the basket. He climbed the ladder and took the ball out of the basket. Luckily, only one man got the ball into the basket in the first game.

Basketball is a very fast game. Players must run up and down the basketball court or gym floor the whole game. At the same time they must control the ball. Today, most players are tall. Many of them are over seven feet tall and weigh more than

at one and the same time the Past, the Present and even the Future.

The story of the University begins, as far as I know, in 1209 when several hundred students and scholars arrived in the little town of Cambridge after they had walked 60 miles from Oxford. These students had been studying in Oxford at that city's well-known schools. It was a hard life at Oxford for there was constant trouble between the people living in the town and the students. Then one day a student accidentally killed a man of the town. The Mayor (мэр) arrested three other students who were innocent (невинновны) and they were put to death. In protest, all the students moved elsewhere, some coming to Cambridge; and so the new University began.

The Colleges join one another along the curve (изгиб) of the river Cam. Going through a college gate one finds one is standing in an almost square space of about 70 square yards (the size varies from college to college) known as the "court" or quadrangle (quad). Looking down into the court on all sides are the buildings where the students live. The Colleges are built on a plan common to all. There is a chapel (часовня), a library and a large dining-hall. The student gets a clear idea of much of the English architectural styles of the past 600 years - the bad as well as the good.

There are nineteen colleges, including two for women students which were built near the end of the last century (women students do not have a very active part in University life at Cambridge by the way, but they work harder than men and one seldom sees them outside of the classrooms).

It is difficult to walk around the quiet quads of the Colleges without feeling a sense of peace and scholarship (ученость).

Schools of the Future-General or Specialized?

The general opinion varies on what a good general education is. Some people believe that an educated person must have general knowledge of a lot of things – chemistry, biology, history, arts, maths and so on. Others argue that it's better to know a lot about a few things than to know a little about a lot. Education has become a matter of general interest and people write to newspapers and magazines expressing their views on the problem. Parents want education to prepare their children for life in the future. They are afraid that bad education may spoil a child's chances in the world of tomorrow. The general impression is that most people speak in favour of specialized education, because nowadays you must know so much in your chosen profession that the earlier in life you start learning it the better chances for success there are.

Answer the questions.

1. Can you explain what a good general education is? Have you a general idea about it? 2. Why has education become a matter of general interest? 3. Is there any general opinion on education nowadays? 4. Has the need for more specialized education become a generally accepted view? 5. Has a general knowledge of physics, chemistry, and mathematics helped you in life so far? 6. Can you say you've got a good education? 7. Do you consider that general knowledge of the arts (music, literature, and painting) is necessary for an engineer, a chemist, an economist? 8. Can they get along without the arts?

Sum up your answers and give arguments for and against general education/specialized education.

1. When did simple counting become necessary.
2. Why does the principle of one-to-one correspondence mean?
3. What do our present number words probably refer to?

PRIMITIVE COUNTING

The concept of number and the process of counting developed so long before the time of recorded history that the way of this development is unknown to us. Try to imagine how it probably took place.

People even in most primitive times had some number sense, they could distinguish between "more" and "less" when some objects were added to or taken from a small group of objects. With the gradual evolution of society simple counting became especially necessary. A tribe had to know how many members it had or how many enemies it had to fight. A man had to know how many sheep he had in his flock.

Probably the earliest way of counting was by some simple method, using the principle of one-to-one correspondence. While counting sheep, for example, one finger per sheep was probably turned under. People could also count with the help of pebbles or sticks, scratches on a stone or knots in a string.

Then, perhaps later, vocal sounds were developed to denote the number of objects in a small group. And still later, with the development of writing, some symbols appeared to stand for these numbers.

This, imagined development is supported by the descriptions of anthropologists in their studies of primitive peoples. In the earlier stages of the vocal period of counting different sounds were used, for example for "two men", "two sheep". Don't forget that the number "two", independent of any concrete association, appeared much later. Our present number words probably referred to sets of certain concrete objects, but these connections, except for that relating "five" and "hand", are now forgotten and lost to us.

Ex. Fill the gaps.

of making soup out of him, put him up on the wall, where the enemy soldiers could see him. The soldiers thought, when they saw the cock that the city was full of food, and went away. So the cock saved the city, and the people put up a monument in his memory.

Ex. Find facts from the story to prove the following.

1. All monuments have their own stories.
2. Many monuments tell us about great people and historic events.
3. Some insects have deserved monuments.
4. Some insects play an important role in agriculture.
5. There may be different reasons for putting up monuments to animals, birds, and insects.

Read the text and tell the main plot in Russian.

ABOUT MATHEMATICS

Some people think of mathematics as a tiresome and endless series of sums which must be added or amounts which must be divided, and imagine that a mathematician is a kind of human computer. But a close look at mathematics, "the queen of sciences", shows that the mathematical world is full of beautiful and intriguing problems, many of which are very important.

The work of mathematicians may be divided into pure mathematics which is an investigation of mathematical theories and ideas, and applied mathematics which deals with the application of mathematical theories to problems in other branches of science. The development of the theory of equations by Galois is an example of pure mathematics. And the work in cybernetics is an outstanding example of applied mathematics.

All well-known mathematicians, ancient or modern, have contributed greatly to the development of mathematics.

Read the text and answer the questions.

The Open University

Read the following text and say what the main idea of the Open University is and what makes it different from a conventional university.

A university which calls itself «The Open University» suggests that all other universities are closed. And this is true because they are closed to everyone who does not have the time, the opportunity or the qualifications to study there. For these people who missed the chance of going to a conventional university, «The Open University» was set up by the British Government in 1967.

Most of the students work at home or in full-time jobs and can study only in their free time. They need to study about ten hours a week. As the university is truly «open», there are no formal entry requirements, and students are accepted on a «first come, first served» basis. This is one of the more revolutionary aspects of the university.

Students are therefore of all ages and come from very different backgrounds. Some, such as teachers, want to improve their qualifications. Others, like retired people or mothers whose families have grown up, are at the O.U. because they now have the time to do something they have always wanted to do. Returning to «school» is difficult for most students, for they have forgotten – or never knew how to study, to write essays, and to prepare for exams. In addition to all the reading and writing assignments, students have got a lot of watching and listening to do, for there are weekly O.U. lectures broadcast on BBC television and radio.

To keep people from just giving up or collapsing under all of this work, each student gets the help and support of his own.

LEARNING IS FUN

A lot of people in Britain really do think that learning is one of the best ways to spend their spare time. Ask a friend to the cinema, and you will quite probably get the reply, "Sorry, that's my judo evening," or, "I can't go on Thursday, I've got to finish my sculpture."

But where do they do these things? How do they find classes? Do they have to travel far to them? Are they expensive?

Almost every town in Britain has classes for adults, most of them held in the afternoons and evenings. Of course, the bigger the town, the more classes it has and the greater the variety of subjects it can offer. But most people, wherever they live, can find classes near their home. Often, they are held in the local schools, after school hours. In London, there are more than thirty Adult Education Institutes; 260,500 students attend classes at them – that's more than 15 million student hours spent in class learning a craft, a skill, a language or a sport. Anyone can come to these classes. The institutes are run and financed by the government. The fee is low and the more classes you join, the less you pay for each one.

For many office workers, their local Institute is a place where they can do something active or creative after a day sitting behind a desk. For some people, it is almost like a club. They make friends, have coffee together in the canteen and go for outings together. Learning is only part of the fun!

Admission Procedures

Students are admitted to British Universities largely on the basis of their performance in the examinations for the General Certificate of Education at ordinary and advanced level. The selection procedure is rather complicated.

A student who wants to go to university usually applies for admission before he takes his advanced level examinations.

The farmers started a war against the cactus; the government spent tremendous sums of money, but they were not successful. The cactuses continued to spread, and Australian grass had no place to grow. At last biologists found an insect that eats cactus plants. Three thousand million eggs of this insect were brought to Australia: the cactuses were all eaten up, and the farmers put up a monument to the insect that had saved their land from the terrible enemy.

Another monument to an insect is more difficult to understand. It is a monument to the boll weevil (долгоносик), the worst enemy of the cotton farmers of America. But the monument was put up by—the cotton farmers themselves! These Alabama farmers refused to listen to scientists, who told them that it was dangerous to plant only cotton on their land, and nothing else. But when armies of boll weevils attacked their cotton, and for several years there was no harvest, they saw the terrible mistake they had made. They began to plant potatoes and corn and other cultures, and everything returned to normal. The boll weevil had taught the farmers a good lesson, and they put up a monument to their teacher.

Shakespeare says there is reason in all things. But there are probably few people who can find reason in the explanation that the English give of their monument "To the Last Wolf". Long ago, the forests of England were full of wolves. Today there are no wolves left (true there aren't many forests either). The English put up a monument to the wolf, not as a sign of their victory over the marauder, but because, as they say, nature has become poorer and less interesting since the last wolf was killed.

The monument to a cock that stands on the wall of an old city tells us a story that we can guess more easily. Four hundred years ago, enemy soldiers surrounded the city; nobody was allowed in or out, the people were dying of hunger. In the whole city there was only this one cock; and the clever people, instead

ologists, hunters, criminologists and anthropologist. We are hoping that soon people will learn that yettis are not a fairy tale, but simply a little known phenomenon—one that we must study carefully.

THE STORIES THAT MONUMENTS TELL.

Shakespeare wrote that there is reason in all things, if only we are clever enough to find that reason. We must agree with the great writer, although the reason in many things around us is sometimes very difficult to find. Among the most difficult sometimes are people's reasons for building monuments.

We do not mean monuments whose history is well known to the whole world: of monuments to Pushkin and Lermontov, to Lomonosov and Pavlov, who gave us knowledge of the world and our own nature; to Gagarin, who opened the road to the stars. Such monuments are easy to explain; we may say they need little or no explanation. But to understand other monuments, to "find the reason" in them, we need special guide-books, the explanations of specialists. We shall speak here of monuments of this kind, monuments to people, animals, birds and even insects.

In Queensland, Australia stands a monument to an unpleasant little insect, whose long Latin name *Cactoblastis* is difficult to pronounce. The people of the country want to remember the insect because it helped to correct a catastrophic mistake.

As we know, plant and animal life in Australia- is not the same as in other parts of the world. Today, nobody is allowed to bring living organisms into Australia from other countries, for very good reasons. Here is one of them.

A few years ago, somebody brought a cactus plant to Australia from Argentina. The plant found a wonderful new home in Australia. It began to grow and spread with such fantastic speed that soon it didn't give other plants a chance to live.

First of all he must write to the Universities Central Council on Admissions (UCCA) and they send him a form which he has to complete. On this form he has to write down the names of six universities in order of preference. He may put down only two or three names, stating that if not accepted by these universities he could be willing to go to any other. This form, together with an account of his out-of-school activities and two references, one of which must be from the headteacher of his school, is then sent back to the UCCA.

The UCCA sends photocopies of the form to the universities concerned. Each applicant is first considered by the university admission board. In some cases the board sends the applicant a refusal. This may happen, for example, if the board receives a form in which their university is the applicant's sixth choice and the university already has many candidates. If there are no reasons for immediate refusal, the university admission officer passes the candidate's papers on to the academic department concerned. One or two members of this department will then look at the candidate's application: see what he says about himself, look at his marks at the ordinary level.

Ex. Speak on the difference in admission procedures at Russian and British Universities.

Ex. Read the text and find the answer

Of the full-time students now attending English Universities three quarters are men, and one quarter women. Nearly half of them are engaged in the study of arts subjects such as history, languages, economics, or law, the others are studying pure or applied sciences such as medicine, dentistry, technology, or agriculture.

The University of London, for instance, includes internal and external students, the latter coming to London only to sit for their examinations. Actually most external students at London University are living in London. The colleges at the Uni-

versity of London are essentially teaching institutions, providing instruction chiefly, by means of lectures, which are attended mainly by day students. The colleges of Oxford and Cambridge, however, are essentially residential institutions and they mainly use a tutorial method which brings the tutor into close and personal contact with the student. These colleges, being residential, are necessarily far smaller than most of the colleges of the University of London.

Education of University standard is also given in other institutions such as colleges of technology and agricultural colleges, which prepare their students for degrees and diplomas in their own fields.

Ex. Find the answer.

1. How many women are there among full-time students attending English Universities?

- a. None.
- b. Very few.
- c. 25 per cent.
- d. Nearly half of them are women.

2. How many full-time students take pure or applied sciences?

- a. More than half of them.
- b. Almost half of them.
- c. Three quarters of them take pure and the others take applied sciences.
- d. Much more than half of them.

3. The University of London_____.

- a. admits students living in London only
- b. doesn't admit women
- c. arranges lectures only for external students
- d. is much larger than Oxford and Cambridge

4. "A tutorial method" means that_____.

- a. students only attend lecturers
- b. a student must meet his teacher regularly

her night vigils. The following month two more members, Geliona Siforova, art artist from Moscow, and Dmitry Sizov, a Kiev student, watched a yetti for more than two hours."

In 1981 the newspaper Komsomolskaya Pravda sponsored an expedition comprised of 160 students, factory workers, office workers, teachers and doctors from all over the country. Their discoveries were less spectacular, however. They did see yettis from a distance on several occasions, but were unable to give a clear description. During the night of August 8, for example, four people saw a large form emerging from behind a huge boulder, 15 metres away. One of the group ran towards the figure but it disappeared amidst undergrowth on the slope of the ravine, these people are certain that it was a yetti but have no concrete proof. In another locality three members of the expedition - settled for the night some way from a slope. Then, from the slope someone began throwing stones into their fire. This went on for an hour. In the morning they counted about 30 stones in the fire. "We have no doubt," they say, "that it was a yetti, but again we have no proof."

We are often asked: "When will you catch him?" Our answer is that we have no such aim. Firstly, from an ethical point of view, we can suppose that these beings are close to us in their level of development, they may even be our closest relatives. Secondly, their senses are more highly developed than ours, and it may be that they sense danger in our intentions. For some time, we have used special visual aids, candid cameras, flashes and other equipment (these beings are nocturnal). But they proved to be useless. Whenever we had encounters it was always at a time when we were walking at night, either alone or in twos, and we were never equipped with cameras or weapons of any kind. We are trying to have more encounters so that the yettis will get used to us, and dispel this mutual fear we have. We aim at friendly, spontaneous contact, but it will take more time and effort. To improve results we have called in zo-

4. Large containers for water or other liquids, sometimes made of metal, are called

- a. tanks
- b. sellers
- c. cartoonists

5. A funny drawing is a

- a. cartoonist
- b. frankfurter
- c. cartoon

Ex. II. Find the information from the text.

Frankfurters were first sold in the United States in the 1960s.

A dachshund is a dog with a long body and short legs.

At baseball games today you cannot see sellers walking around with hot-water tanks.

Tad Dorgan got an idea for a cartoon in his office.

Tad Dorgan drew a bun with a sausage inside.

The words under Tad Dorgan's cartoon were "Get your hot dogs!"

Read the text and discuss it.

THE ABOMINABLE SNOWMAN IN THE MOUNTAINS OF TAJIKISTAN?

"The first question we are often asked is: "Have you ever seen the abominable snowman?" I can truthfully say "Yes", states Igor F. Tatsi, a worker from the Kiev Bolshevik Factory, and an experienced mountaineering instructor. He and a group of friends have returned from the Gissar Mountains in the Pamiro-Alai Range of Tajikistan where he insists, they have proof that the abominable snowman, or yetti, exists.

One of their discoveries includes a plaster of - footprint, 35 cm long, found on a tributary of the Varzob in August 1979.

"In August 1980, at the same place, a member of our expedition, Nina Grineva, saw a yetti, 2 metres high during one of

- c. the college a student goes to is residential
- d. the college includes internal and external students.

5. Where can a British student receive a university-level education?

- a. Only at the University of London.
- b. Only at Oxford and Cambridge.

c. At universities, colleges of technology, agricultural colleges and other institutions.

d. At Oxford, Cambridge, at the University of London and a number of other universities.

MODERN EXAMINATIONS

In ancient times the most important examinations were spoken, not written. In the schools of ancient Greece and Rome, testing usually consisted of saying poetry aloud or giving speeches.

In the European universities of the Middle Ages, students who were working for advanced degrees had to discuss questions in their field of study with people who had made a special study of the subject. This custom exists today as part of the process of testing candidates for the doctor's degree.

Generally, however, modern examinations are written. The written examination, where all students are tested on the same questions, was probably not known until the nineteenth century. Perhaps it came into existence with the great increase in population and the development of modern industry. A room full of candidates for a state examination, timed exactly by electric clocks and carefully watched over by managers, resembles a group of workers at an automobile factory. Certainly, during examinations teachers and students are expected to act like machines. There is nothing very human about the examination process.

Two types of tests are commonly used in modern schools. The first type is sometimes called an "objective" test. It is in-

tended to deal with facts, not personal opinions. To make up an objective test the teacher writes a series of questions, each of which has only one correct answer. Along with each question the teacher writes the correct answer and also three statements that look like answers to students who have not learned the material properly.

On objective tests the student has just one task: he must recognize the correct answer and copy its letter (or number) on his examination paper. Sometimes there is an answer sheet on which the four letters or numbers are printed. Then the student has only to circle the one that goes with the correct answer.

For testing student's memory of facts and details, the objective test has advantages. It can be scored very quickly by the teacher or even by a machine. In a short time the teacher can find out a great deal about the student's range of knowledge.

For testing some kinds of learning, however, such a test is not very satisfactory. A lucky student may guess the correct answer without really knowing the material. Moreover, some of the wrong answers are usually more incorrect than others, yet the scores on the test will not take account of this fact.

For a clearer picture of what the student knows, most teachers use another kind of examination in addition to objective tests. They use "essay" tests, which require students to write long answers to broad general questions.

One advantage of the essay test is that it reduces the element of luck. The student cannot get a high score just by making a lucky guess. Another advantage is that it shows the examiner more about the student's ability to put facts together into a meaningful whole. It should show how deeply he has thought about the subject. Sometimes, though, essay tests have disadvantages, too. Some students are able to write rather good answers without really knowing much about the subject, while

1860s. Americans called frankfurters "dachshund sausages." A dachshund is a dog from Germany with a very long body and short legs. "Dachshund sausage" seemed like a good name for the frankfurter.

Dachshund sausages first became popular in New York, especially at baseball games. At games they were sold by men who kept them warm in hot-water tanks. As the man walked up and down the rows of people, they yelled, "Get your dachshund sausages! Get your hot dachshund sausages!" People got the sausages on buns, special bread.

One day in 1906 a newspaper cartoonist named Tad Dorgan went to a baseball game. When he saw the men with the dachshund sausages, he got an idea for a cartoon. The next day at the newspaper office he drew a bun with a dachshund inside - not a dachshund sausage, but a dachshund. Dorgan didn't know how to spell dachshund. Under the cartoon, he wrote "Get your hot dogs!"

The cartoon was a sensation, and so was the new name. If you go to a baseball game today, you can still see sellers walking around with hot-water tanks. As they walk up and down the rows they yell, "Get your hot dogs here! Get your hot dogs!"

Ex. I. Complete the sentences.

1. The special bread used for a hot dog is a
 - a. sausage
 - b. bun
 - c. dachshund
2. Another word for "to shout" is to
 - a. name
 - b. draw
 - c. yell
3. A line of objects or people is a
 - a. row
 - b. game
 - c. cartoon.

corresponded to the position of the King's Burial Chamber in the Great Pyramid – directly under the apex one-third of the way up. Drbal patented a Pyramid Razor Blade Sharpener in 1959 and small red and white plastic pyramids appeared on the market soon afterwards.

Since then American researchers have discovered many more powers of the pyramid. A recent claim is that meditation is facilitated and enhanced if done under a pyramid wearing a pyramid as a hat. Like razor blades, old and dry tobacco can be revived under model pyramids. In fact, the list of pyramid experiments is endless but here is one of the things I have tried with pyramids.

I tried placing pyramids above plants to see if growth was helped by pyramid powers. I had two identical avocado plants, so I placed a pyramid over one but not the other. The plant with the pyramid over it has grown faster and healthier than the other plant. To revive the weaker plant I tried watering it with water which I had left under a pyramid for a few days: sure enough the plant sprouted new leaves and began to look much healthier until I started watering it with untreated tap water again.

Despite all the experiments with pyramids there is still no scientific explanation for their powers. All you can do is build your own model pyramid and see if it works for you, like it did for me. See, for instance, if pyramids can sharpen blunt knives and scissors as well as razor blades or find out if a pyramid can preserve perishable food or milk. The only way to find out if you believe in this strange inexplicable power is to try the experiments for yourself.

The Hot Dog

In its home country of Germany, the hot dog was called the frankfurter. It was named after Frankfurt, a German city.

Frankfurters were first sold in the United States in the

other students who actually know the material have trouble expressing their ideas in essay form.

Besides, on an essay test the student's score may depend upon the examiner's feelings at the time of reading the answer. If he is feeling tired or bored, the student may receive a lower score than he should. From this standpoint the objective test gives each student a fairer chance, and of course it is easier and quicker to score.

Most teachers and students would probably agree that examinations are unsatisfactory. Students dislike taking them; teachers dislike giving them and scoring students' answers. Whether an objective test or an essay test is used, problems arise. When some objective questions are used along with some essay questions, however, a fairly dear picture of the student's knowledge can usually be obtained.

Answer the question.

What do you think about examinations?

UNIT II TRANSPORT AND TRANSPORTATION

THE HORSELESS CARRIAGE

Benz, Karl (1844–1929) was a German inventor of the automobile, who devoted his life to making a horseless carriage. When Benz's three-wheeled engine-driven machine (the first "car") appeared on the streets in 1885, people stood aghast to see that it moved without the aid of men or horses. A German newspaper wrote: "There is no doubt that this engine-velocipede will make a strong appeal to a large circle as it should prove itself quite practical and useful to doctors, travelers, and lovers of sport." It was the beginning of the end of the horse for traction.

To Benz, it was a particular triumph, because he had pleaded for his idea almost alone. There had been horseless carriages before, which were driven by steam-engines but Benz built an engine that was both lighter and more powerful than any other. He put it on to a chassis and got power from the engine to the wheels. Benz's first car was a great achievement for one man; everything — engine, fuel, transmission, controls — had been developed and designed by him; the wheels were driven by means of a chain, and there were two speeds.

His early days were very difficult because of the speed limits the police imposed on him: twelve kilometers an hour outside the city limits, six — inside. Benz saw that he would never be able to develop his cars if this rule were not altered, and he thought of a scheme to abolish it. He wrote to the Minister of Baden asking him if he would like a ride in his car. The Minister accepted the invitation. Then Benz arranged with local milk man that he should wait with his horse and van in a certain road. When Benz with the Minister in his car, passed them, at six kilometers an hour the milkman, as had been agreed, started oil, passed the car at a good speed, and laughed at them. The

der" should be crossed out: the Pyramid; the Sphinx; the Gardens of Babylon; the Temple of Artemis; the statue of Zeus at Olympia; the Mausoleum; the Colossus of Rhodes; the Pharos of Alexandria.

Answer the questions;

Do you remember who the Temple of Artemis was destroyed by?

Where did the word "mausoleum" originate from?

What is larger: the Colossus of Rhodes or the American Statue of Liberty?

How far could the light of the Pharos be seen?

Discuss the four above described Ancient Wonders with your fellow-student, compare them with those described in the previous Unit and say which of the Wonders impressed you most and why. Explain your choice.

Pyramid Power

As the story goes, a Frenchman, Antoine Bovis, first noticed these powers while exploring the Great Pyramid at (El) Gizeh in Egypt during the 1920s. He saw the bodies of small animals which had wandered into the Pyramid and died. Instead of decomposing, as would be expected, these bodies had dehydrated and mummified. On returning to France he conducted a series of experiments with model pyramids and discovered, for instance, that steak was still quite edible and tasted good after being left under a pyramid for several months.

Bovis' discoveries were taken up by the Czechoslovakian Karl Drbal in the 1950s. He found that pyramids could affect non-organic matter as well as organic matter. A razor blade, for example, never became blunt if placed under a pyramid. Even blunt razor blades placed under a pyramid for a few hours became sharp. Drbal found that one razor blade could be used up to 200 times or more if kept under a pyramid. He also discovered that the position where his razor blades sharpened best

4. How was the greatest statue of Zeus destroyed?
5. Discuss the four above mentioned ancient wonders with your fellow-student and choose the most wonderful. Prove your choice.

ANCIENT WONDERS OF THE WORLD (II)

The temple of Artemis is one of the most famous temples of the ancient world. It stood for 600 years in Ephesus, a great city of Syria. The temple was sacred to Artemis, also called Diana, goddess of the moon. The finest sculptors and painters of Greece decorated this beautiful building, which was destroyed by the barbaric Goths. Only a few pieces of statues and columns remained. They were dug up by modern scientists.

Few remember the tiny kingdom of Caria, which once flourished in what is now southwestern Turkey. But the name of its king, Mausolus, is known because of the word "mausoleum" a massive tomb. The original Mausoleum, built in memory of this king by his widow, Queen Artemisia, was so magnificent that it was one of the Wonders of the Ancient World.

Rhodes, an island near Greece, was one of the richest and busiest towns of the ancient world. Standing across the entrance to its big harbor, was a huge statue of the sun god Helios, famous as the Colossus of Rhodes. Although ships sailed beneath these giant feet, the Colossus was not as large as the American Statue of Liberty.

The most famous lighthouse in ancient times was the Pharos of Alexandria built by Alexander the Great. It guarded the harbor of Alexandria, in Egypt, and its light atop a high tower could be seen for sixty miles. To keep the beacon shining, the lighthouse keepers had to feed a bright fire unceasingly, for the powerful electric lamps behind glass lenses used in our lighthouses were not yet invented.

In ancient times Seven Wonders of the World were listed. Read the following list of eight Wonders and find which "won-

plan worked perfectly: the Minister was so angry at being passed by a milkman that he ordered Benz to go faster. But Benz referred to the speed limit. "Never mind, said the Minister. Thus Benz won the day.

Green Cars.

Many of the world's cities lie under a permanent blanket of smog. People are concerned about global warming, and fuel prices just keep going up and up. It's no surprise therefore, that in recent year, car manufactures have been put under pressure to invent a vehicle that is both cheaper to run and better for the environment. Finally, after much trial and error, it seems as though they might be making progress, and the future of the car industry is beginning to look a little 'greener'.

One of the first ideas which car manufacturers tried was to replace engines which run on fossil fuels with electric motors. Unfortunately, these vehicles had several drawbacks and they didn't sell very well. The problems were that the batteries of these electric cars ran out very quickly and took a long time to recharge. Also, the replacement energy packs were very expensive.

However, the idea of electric cars has not been scrapped altogether. Car manufacturers have improved the concept so that environmentally friendly cars can now be efficient and economical as well. This is where the hybrid car, which has both an electric motor and a traditional petrol engine, comes in. The electric motor never needs to be recharged and it is much better for the planet than a traditional car.

In a hybrid car, the engine is controlled by a computer which determines whether the car runs on petrol electricity or both. When the car needs maximum power, for example, if it is accelerating or climbing a steep hill, it uses all of its resources, whereas at steady speedy it runs only on petrol. When slowing down or braking, the electric motor recharges its batteries.

Hybrid cars are better for the environment because the electric motor can help out whenever it is needed and they have a much smaller engine than a traditional car. Also, hybrid cars on the market are made using materials such as aluminium and carbon fibre, which makes them extremely light. Both of these factors mean that they use far less petrol than normal cars, so they produce less pollution.

Of course, hybrid cars aren't perfect; they still run on fossil fuel and so pollute the environment to some extent.

However, they may be the first step along the road to cleaner, greener cars. Car manufacturers are already working on vehicles which run on hydrogen. The only emission from these cars is harmless water vapour. These are still some way in the future, though, as designers need to think of cheap and safe ways of producing, transporting and storing hydrogen, but at last, it looks like we might be heading in the right direction.

Ex. Find the answer.

1. Car manufacturers are trying to invent a new vehicle because

- a. today's cars produce too much poisonous gas.
- b. it is difficult to drive in cities
- c. today's cars use too much fuel.
- d. the car industry is in trouble.

2. Vehicles which ran on electric motors.

- a. moved very fast.
- b. were made of pieces of scrap.
- c. were not very popular.
- d. had to have their engines replaced.

3. The electric motor in hybrid cars

- a. doesn't need to recharge its batteries.
- b. has its own petrol engine.
- c. takes a long time to be recharged.
- d. needs replacement energy packs.

of the Pharaoh Cheops, who once ruled Egypt. More than 100,000 slaves labored for twenty years to build it. They had no machines, not even carts - all the work was done by human strength alone. Yet each huge block was so well laid that the Pyramid has stood for 5,000 years.

Near the Great Pyramid in Egypt stands a huge sculptured rock called the Sphinx. The face is that of a man, perhaps the Pharaoh Khafre who had it built almost 5,000 years ago. But the body is that of a lion, and between its great stone paws there is a small temple. Since no one knows exactly why the Sphinx was built, it remains a symbol of mystery - a riddle. In Babylon, one of the great cities of the ancient world was a famous garden which amazed visitors for hundreds of years. It was called the Hanging Gardens, because it was built along arches and towers and looked like a wall of flowers and green shrubs? The garden was kept alive by a hidden pool on the highest terrace, from which the water was drawn to appear in a series of fountains. The gardens were built by King Nebuchadnezzar, who is mentioned in the Bible as the cruel conqueror of Jerusalem.

The greatest god of the ancient Greeks was Zeus, whom the Romans called Jupiter. The greatest statue of Zeus was at Olympia, where the famous Olympic Games were played in his honour. The statue was 40 feet high - about seven times as high as a man is tall - and was made of marble, decorated with pure gold and ivory. After 1,000 years, an earthquake tumbled it down.

Answer the questions:

1. There is only one of the Seven Wonders of the Ancient World that still stands. What is it?

2. Why does the Sphinx remain a riddle? Can you solve this riddle? Try to do it, and give your own explanation.

3. Why are the Hanging Gardens of Babylon considered to be a wonder?

cial will not say that a product is better than others. Instead, its goal will be to create a positive mood or feeling about the product.

Global advertisers must also consider differences in laws and customs. For instance, certain countries will not allow TV commercials on Sunday, and others will not allow TV commercials for children's products on any day of the week. In some parts of the World, it is forbidden to show dogs on television or certain types of clothing, such as jeans. The global advertiser who does not understand such laws and customs will soon have problems.

Finally, there is the question of what to advertise. People around the world have different customs as well as different likes and dislikes. So the best advertisement in the world means nothing if the product is not right for the market. Even though some markets around the world are quite similar, companies such as McDonald's have found that it is very important to sell different products in different parts of the world. So when you go to a McDonald's in Hawaii, you'll find Chinese noodles on the menu. If you stop for a hamburger in Germany, you can order a beer with your meal. In Malaysia, you can try a milk shake that is flavored with a fruit that most people in other countries have never tasted.

All of these products must be sold with the right kind of message. It has never been an easy job for global advertisers to create this message. But no matter how difficult this job may be, it is very important for global advertisers to do it well. In today's competitive world, most new products quickly fail. Knowing how to advertise in the global market can help companies win the competition for success.

ANCIENT WONDERS OP THE WORLD (I)

The Great Pyramid is the only one of the Seven Wonders of the Ancient World that still stands'. It was built at the order

4. The computer in a hybrid car
 - a. powers the engine.
 - b. helps the car to go up hills.
 - c. keeps the car running at a steady speed.
 - d. decides how the car should be powered at any given time.
5. Hybrid cars are better for the planet because
 - a. they use different fuel to normal cars.
 - b. they are made of special materials.
 - c. the electric motor is smaller than a normal engine
 - d. they produce less harmful gases
6. Hybrid cars are not the ideal solution because
 - a. they produce carbon fibre.
 - b. they do not make the roads cleaner.
 - c. they also use petrol.
 - d. they are made from aluminium.
7. Cars which run on hydrogen are not available yet because
 - a. it is hard to drive them in the right direction
 - b. it is difficult to store hydrogen
 - c. they produce too much water vapour
 - d. there is no future for them

Ex. Put the verbs in the correct form.

The Car Of The Future

A pessimist is a person who always (expect) bad things to happen. Pessimists think that today's cars (be) in trouble because they (use) too much gas. They say the car of the future (be) much, much smaller. The car of tomorrow (have) no heater and no air conditioning. It (have) no radio and no lights. Tomorrow's car (be) an open air car with no doors and windows. It (negative, need) a pollution control system because it (use) gas. In fact, drivers (push) this new car with their feet. Very few people (kill) in accidents because the top speed (be) five miles per hour.

However, pessimists (warn) us not to ask for pretty colors, because the car will come in gray only.

Optimists (be) sure that the future (be) happy. They think that car companies soon (solve) all our problems by producing the Supercar. Tomorrow's car (be) bigger, faster, and more comfortable than before. The Supercar (have) four rooms, color TV, running water, heat, air conditioning, and a swimming pool. Large families (travel) on long trips in complete comfort. If gas (be) in short supply, the Supercar (run) on water. Finally, optimists (promise) that the car of the future (come) in any color, as long as the color is gray.

TRAMS

The tram, which disappeared in many cities before and after the war, may come back.

The advantages of the tram are that it is considerably cheaper than the railway, silent in operation, free from exhausted gases and able to provide a more frequent service with more stops.

Much interest is being shown in both Europe and America, where existing systems are being extended and new up-to-date vertices are coming into service.

Studies are being carried out in many countries. Considerable amount of work has been done in the development of electric light railway systems in various parts of the world.

SPACE AGE TRAMS

Boeing is building trams which are designed for service in Boston and San Francisco, where the tram has never really gone out of style. Boston will get 175 and San Francisco is taking 100 over the next few years. These modern trams may signal a return all over the country for a vehicle which has almost disappeared. New train systems are under consideration in many other cities, Portland, Oregon, Kansas City, and San Die-

world of advertising, this is quite possible. Consider the example of Jacko. This great Australian football hero recently appeared on TV and yelled at the audience to buy products. Jacko's campaign worked well in Australia, so Energizer batteries invited him north to sell their product in the United States. But Jacko's yelling did not convince the American audience to buy batteries. So, good-bye, Jacko. Hello, Energizer Bunny, the little toy rabbit that has sold far more batteries than Jacko.

In the world of advertising, selling products is the most important goal. As companies are becoming more global, they are looking for new ways to sell their products all over the world. It is true because of global communication, the world is becoming smaller today.

But it is also true that the problems of global advertising – problems of language and culture – have become larger than ever. For example, Braniff Airlines wanted to advertise its fine leather seats. But when its advertisement was translated from English to Spanish, it told people that they could fly naked! Another example of wrong translation is when Chevrolet tried to market the Chevy Nova in Latin America. In English, the word nova refers to a star. But in Spanish, it means "doesn't go." Would you buy a car with this name?

To avoid these problems of translation, most advertising firms are now beginning to write completely new ads. In writing new ads, global advertisers must consider different styles of communication, in different countries. In some cultures, the meaning of an advertisement is usually found in the exact words that are used to describe the product and to explain why it is better than the competition. This is true in such countries as the United States, Britain, and Germany. But in other cultures, such as Japan's, the message depends more on situations and feelings than it does on words. For this reason, the goal of many TV commercials in Japan will be to show how good people feel in a party or some other social situation. The commer-

ner suggested ... an advertisement for the drink in the Atlanta Journal that very year. In 1888, Asa Candler bought the Coca-Cola business and decided ... the product known through signs, calendars and clocks. The company began its global network when Robert Woodruff was elected president of the company in 1923. He succeeded in ... Coca-Cola into a truly international product by ... a foreign department, which exported Coca-Cola to the Olympic Games in Amsterdam in 1928. During World War II, he promised Coca-Cola to every soldier in every part of the world. Coca-Cola's advertising has always attempted ... changing contemporary lifestyles ... an international advertising campaign requires the talents of professionals in many areas, and extensive testing and research are always done before ... which advertisements will finally be used. Celebrity endorsements have featured heavily - Cary Grant, Ray Charles and Whitney Houston are just three of the big name stars who have agreed ... in Coca-Cola commercials. After Diet Coke in 1982, the company saw its sales grow quickly. The drink is now the third most popular in the world. In 1985, the company tried ... the secret formula of Coca-Cola, but realized, that Americans were very attached to the original recipe. The company listened to its consumers and quickly responded by ... the original formula to the market as Coca-Cola Classic. Today, people in more than 160 countries around the globe enjoy ... Coca-Cola. It is asked for more than 524 million times a day in more than 80 languages. The company intends ... its global presence even further in the twenty first century, particularly in developing markets.

build, set up, run, bring, make, transform, decide, reflect, appear, create, return, change, expand, launch, drink.

Advertising All Over the World

How can a rabbit be stronger than a football hero? How can a rabbit be more powerful than a big, strong man? In the

go. New Orleans, which still has a few trams, would like to expand its public transit service

Why are we suddenly building 300,000 trams when most people thought they had completely disappeared?

City traffic jams, the fuel crisis and pollution have led to the development of mass transit as a solution to the problem caused by cars and buses in many cities. Subways were the first choice, but their high cost (50 million per mile of system) stops most cities from constructing them. The cost of monorails and other unusual transportation systems is even higher. Buses don't have the passenger capacity of subways and trolleys, nor do they get power from a central source; centralized power is cheaper and more efficient economically to generate. So a tram running on its own lane separate from car traffic has come back as one way of moving large number of passengers, keeping out cities from being choked with gas. Because of these factors the Department of Transportation has put millions of dollars into perfecting Light Rail Vehicle which, it now believes, is the most advanced tram in the world.

The 73-foot-long tram is designed for passenger comfort, and has a smooth quiet ride. At 40 mph the noise level is 80 db (decibels) at 50 feet. The noise level inside the tram is 65 db which compares favorable with the noise levels inside many of the more expensive cars. It accelerates rapidly and smoothly because the tram operator controls the amount of power that's fed to the motors.

The only thing that's old-fashioned about the tram is the tram bell. You just can't have a tram without one.

Ex. Chose the sentence according to the text.

1. The number of trams in American cities
- 1) is small but increasing; 2) is small and decreasing with every year; 3) is small and will never increase.

2. The advantages of a subway system is:
 - 1) Low cost; 2) high passenger capacity; 3) ease of construction.
3. Trams are planned to run
 - 1) Along specially designed streets; 2) along a separate track in the street; 3) along the same lanes with other city transport.
4. The disadvantage of a monorail is:
 - 1) high cost, 2) small passenger capacity; 3) high noise-level.
5. The noise level produced by a tram is:
 - 1) less than in a passenger car; 2) the same as in a passenger car, 3) higher than in a passenger car.

Ex. Read the text and compare three types of city transport. Use the following expressions.

Causes (no) pollution; causes (no) jams; more noisy; more expensive to construct; less expensive to construct; carries more passengers; carries less passengers

CITY AND CITY TRANSPORT

The problem of urban transportation has become very important. A large number of new transport systems are known to have been proposed in the past decade or so. But before describing the new systems and their applications it is necessary to look back briefly to see how cities got their present layout, and what are the factors that have caused the present problems of urban transport.

The first factor is the growth of population. The cities developed as a rule because of the need for people to gather. The second factor is the changing distribution of population within cities. There has been a steady drift of population from the high density centre to the lower density suburbs. The increase and improvements of transport are believed to be the main reasons for this drift.

One of the houses built in Kiev early in this century may also be considered as an advertisement. It is decorated by figures of sea monsters, shells and sea dragons. The story of house is unusual. The owner of a cement plant couldn't sell his product as it was a new material and construction firms were quite conservative. So, when he learnt that a well-known architect was going to build a new house for himself he offered cement free of charge on the condition that the house would be decorated by sculptures made of cement. The unusual building attracted everybody's attention and served as an excellent advertisement of the new building material. Today advertising uses all media - press, radio, television and cinema.

Read for information.

1. The Origin of the Word "Tariff". The Moors who were once masters of Spain used to capture all the ships passing through the strait of Gibraltar. After forcing the ships to enter their harbor at Tarifa they robbed them. But the Moorish pirates were well aware of the fact that if they continued robbing the merchants of all their goods, ships would stop coming through the strait of Gibraltar.

So instead of seizing all the goods they demanded payment in proportion to the value of goods. This was the way the word "tariff" originated.

2. The Origin of the word "Budget", "Budget" is an old word meaning a bag containing papers or accounts. The use of the word in public finance originated in the expression "The Chancellor of the Exchequer opened his Budget", which is applied in Parliament to the annual speech of the Chancellor of the Exchequer explaining his proposals for balancing revenue and expenditure.

Ex. Fill the gaps using gerund or infinitive.

Coca-Cola and its advertising

John S. Pemberton invented Coca-Cola in 1886. His part-

opinion you have read in the text. What is your own opinion on that score?

4) Make a list of recommendations: how to behave during the first four minutes together with the person you meet after long parting. Discuss these recommendations with your fellow-students.

Advertising.

Read and discuss the following story.

How and what our ancestors (предки) advertising? It isn't easy to establish when the first advertisement appeared, and it is not surprising since it goes back to very ancient times. A papyrus in the collection of the British museum, in London, advertises the sale of a slave. Rock drawings and inscriptions along the roads were also an excellent way to advertise things.

Probably the oldest advertisement was found in the excavations of the ancient Egyptian town of Memphis. It says: "I, Rhinos from Cyprus, live here. Gods gave me the gift of the true telling of dreams." This advertisement is 2,500 years old. It is carved in stone and visitors to one of the Cairo museums can inspect it.

In the excavations of one the towns of ancient Greece archaeologists found about 300 stone fragments with letters of the Greek alphabet. When they put the fragments together they found it was a tablet for a shop window with a list of goods and their prices.

The first in the world that put in an advertisement was a hand-written Roman newspaper "Daily Happenings". It contained announcements of meetings, births, and marriages in the noble families of Rome. To attract customers bright signs with the name of the owner and his goods painted on them appeared above shops. Fruit, vegetables, sheep, shoes, hats were painted by "naive painters". Some of these painters were really outstanding masters, such as Niko Piroshmanishvili.

One should remember that walking was the major transport mode both in and out of cities until the end of the eighteenth century. The cost of a horse in terms of - a laborer's wages was about three times that of a mass produced motor car today. (The fare for a coach from Paddington to the City of London was about two shillings or 1% of a laborer's annual income.)

This lack of cheap transport led to the development of very high density building within the city centre. The situation was changed by the introduction of horse buses and urban railways in the middle of the nineteenth century, followed by horse trams and electric trams towards the end of that century. These allowed a city to grow beyond the radius set by a walking distance.

The introduction of the motor car and motor bus in the 1920s allowed the residential areas along the railway lines to broaden and the increase of car ownership since about 1950 has led to both residential and industrial development in open areas around cities. This growth leads to longer journeys to work, school, or shopping, and more travel per day, even without population growth.

The third factor is the growth of private cars. To own a car has become not only pleasant, but in many cases simply necessary. However, car ownership leads to road congestion. The congestion is partly the result of the peaks in demand for travel to and from work and school, and at present it is usual for 25% of the whole day's travel to occur in a two hour period.

Of course, transport is only a service industry, and must be coordinated with developments in communications and with planning. The first thing to do is to develop transport systems which are cheaper to install, cheaper to operate and aesthetically more acceptable than some of the existing ones.

The examples of such are the use of buses in a demand-activated mode (dial-a-bus) made possible by better com-

munication computers and organization; the use of electronics for the presentation of information to car drivers and the automatic control of cars on motorways; and the design of improved vehicles, such as monorail or automatically controlled trams.

Any automatic vehicle that operates at much above walking speed will need a reserved track, and to avoid creating a barrier to the movements of pedestrians and vehicles this must be above or below ground. In each case the vehicle systems are known to be under development in a number of countries.

The vehicles would be propelled by electric motors to reduce pollution and noise, and would be supported by rubber tyres, air cushion or magnets.

At present much thought is given to the development of minitrans for application as distribution systems in central city areas, for links between car parks and high activity areas, and for circulation systems at airports.

Apart from these systems other new forms of urban transport may involve low speed moving pavements, never-stop railways and buses on specially constructed reserved tracks. These do not involve significant quantities of new technology.

Moving pavements are already in use at some airports, transit stations and shopping centers. Their disadvantages is that human limitations at getting on and off restrict their speed to 2 1/2–3 1/2 km/h, as compared to a normal walking speed to 5 km/h.

Improved transport will not solve, of course, all the problems facing cities today. But it will no doubt lead to changes which will make city life more pleasant.

Notes to the text.

drift – зд. перемещение

in terms of – с точки зрения

a demand-activated mode (dial-a-bus) – по вызову (со стоянки)

When somebody is introducing us to new people, the author suggests, we should try to be friendly and self confident. In general, he says "People like people who like themselves".

On the other hand, we should not make the other person think we are too sure of ourselves. It is important to be interested and sympathetic, realizing that the other person has his own needs, fears and hopes.

But isn't it dishonest to give the appearance of friendly self-confidence when we don't actually feel that way? Perhaps, but according to Dr. Zunin, "total honesty" is not always good for social relationships, especially during the first few minutes of contact. There is a time for everything. Some play-acting may be very good for the first minutes of contact with a stranger. That is not the time to complain about one's health or to find faults with other people. It is not the time to tell the whole truth about one's opinions and impressions.

Much of what Dr. Zunin said about strangers also applies to relationships with family members and friends. According to his observations husband and wife or a parent and child, were having problems during their first four minutes together after they had been apart Dr. Zunin thinks that they should treat the first few minutes together with care. If there are unpleasant matters they should discuss them later. In such a case they will be talking more peacefully and there will be more understanding between them.

Ex. Answer the questions.

1) Recollect your own social experience and say if the following statement true or false: if you are meeting someone in a social situation give him your full attention for four minutes. Try to substantiate your opinion.

2) Do you agree that "people like people who like themselves"? Isn't the author exaggerating?

3) Isn't it dishonest to give appearance of friendly self-confidence when you don't actually feel that way? Dr. Zunin's

dents, to improvise their lessons, and every time invent forms of study that are interesting and instructive for the students. Whereas at an ordinary lesson at an institute 15 words would be studied, in our case it is 100 and more words.

Q.: Why does this occur? Where is this key to reserves that are not used in the traditional forms of instruction?

A.: To give an idea of this key, we must take a look at the past. In their time Nadezhda Krupskaya and many other teachers and psychologists of the 1920s and 1930s clearly saw the advantages of collective study.

During the lesson the teacher associates with either everyone at once, meaning with no one in particular, or with only one pupil. What is forgotten in this case is the fact that the teacher has in front of him not a conglomerate of individuals but a real collective, which is why the advantages associated with it are not put to use.

Our method enables the students to establish their place in the common work, themselves, and the reserves of every individual are revealed to the full. Team work is the main secret of intensive study. Of course, not every collective study must be intensive, but in studying a foreign language it is a more than justifiable practice.

People who study in accordance with the new methods work no less and possibly even more than in the case of traditional methods, but their work is enjoyable and so it is more effective.

THE FIRST FOUR MINUTES

When do people decide if they want to become friends? During their first four minutes together, according to a book by Dr. Leonard Zunin. In his book "Contact: First Four Minutes", he offers this advice to anyone who is about to start new friendship: if you are meeting someone in a social situation, give him your full attention for four minutes.

Ex.1 Answer the questions:

1. What transport problem has become very important? 2. What has been proposed in the past decade? 3. What are the factors that have led to the present problems of urban transport? 4. What was the major transport mode until the end of the 18th century? 5. What led to the development of very high density building within the city centre? 6. What kinds of changes were made in the middle of the 9th century? 7. What does car ownership lead to? 8. What must transport be coordinated with? 9. By what kind of motor should the vehicle be propelled to avoid pollution? 10. Why is it necessary to support the vehicle by rubber tyres? 11. Where can minitrans find application? 12. What are the other new forms of urban transport? 13. What will make city life more pleasant?

Ex.2

1. "The cities developed as a rule because of the need for people to gather for mutual protection, for commerce and for education."

Do you agree with the author? Which factor was the most important in your opinion? Give your reasons.

2. "There has been a steady drift of population from the high density centre to the lower density suburbs."

What is meant here?

3. "The increase and improvement of transport are believed to be the main reasons for this drift."

Do you agree with the author? Can you give your reasons for the drift of the population from the centre?

4. "This lack of cheap transport led to the development of very high density building within the city centre."

Can you explain why?

5. "Car ownership leads to the road congestion." Do you agree with the statement? Do you know any other reasons that lead to traffic congestion?

6. Проанализируйте данные ниже основные требования, предъявляемые к новым формам городского транспорта, и объясните, почему они важны:

1) small size; 2) non-pollution; 3) low noise level.

Ex.3 Расскажите о будущих транспортных системах и усовершенствованиях в этой области, закончив следующие предложения.

1. The use of buses in a demand-activated mode is made possible by . . . 2. Electronics will be used for the presentation of information to 3. Automatic control will be used for . . . 4. Trams will be controlled 5. To reduce noise and pollution small automatic vehicle systems will be propelled by6. The vehicles will be supported by . . . 7. Minitrams will be used in ... 8. Other new forms of urban transport will involve

Ex 4. Translate the following expressions.

to propose the measures for noise limitation; a pleasant journey; the disadvantages of the proposed layout; acceptable date; a cheap mode of transport; to create new modes of transport; apart from other disadvantages; land ownership, car ownership; to broaden streets; annual conference; a brief instruction; below sea-level; within two decades; to face the lack of labour force; the growth of congestion in the city centre; reserved parking; to limit the number of pedestrians; to reduce traffic congestion; railways tracks; to reduce the number of car accidents; air cushion; the attempt to repair the tyre; rush hour congestion; to face an unpleasant prospect; to reduce tyre wear; to live in the suburbs; to wish him a happy journey; to create a new model of aircraft; the population growth; a city layout; in the past two decades; to avoid noise and pollution; a more efficient mode of calculations; the introduction of jet-propelled aircraft; to broaden one's interests; apart from the reduction of noise; the annual output of the plant; air-cushioned transport; problems facing modern youth; to lack knowledge; to use cheap fuel.

A.: A large amount of the vocabulary – not less than 2,000-2,500 words, sometimes up to 3,500. Grammar. Not in its entirety, of course, but enough to engage in a conversation or discussion. Here I should explain that in many languages, English and French, for instance, there are verbal forms which, although described in all grammar books, account for only 2-3 per cent of speech and even scientific texts. Therefore, they can be safely dispensed with when studying the language in concise form. We put the accent on "live" speech.

In short, the main thing in the new method does not merely know the language, but the ability to use it, the ability to shift speech habits from one situation to another. At first glance, this may seem inessential, but the psychologists and methodologists of the intensive training system know well that this communication ability is not easy to achieve. In our system it is guaranteed.

It's well known that in any country schoolchildren have no likings for studying a foreign language, to put it mildly. Students, aware that they can't avoid it, study it with "clenched teeth", so to say. But the students of intensive study groups attend lessons with pleasure.

Q.: Why this "metamorphosis"?

A.: The reason is simple. Our method is based on the principle of maximum utilization of time and a student's willing, active and creative participation in the training process. Unlike schools, where he is the supreme being, the teacher does not play an authoritarian role. In the intensive study system the teacher is a member of the study group, which he himself forms during lessons and unobtrusively directs. His prestige rests on knowledge, on an ability to communicate with people, to subtly supervise the psychological processes taking place in the group. Therefore in our system personal qualities play the primary role, becoming one of the means of instruction. For the teacher must be able to professionally direct the dialogue between stu-

grammers of accelerated study of foreign languages have been introduced in some higher educational establishments, and this trend is being intensively developed.

"At a recent international conference in Moscow, UNESCO experts discussed the new trend in teaching foreign languages to adults. The method in question was formulated by Professor Georgi Lozanov, a Bulgarian scientist. Subsequently, our scientists developed several independent methods, based on the same principles as Lozanov's. In Russia today this intensive study is more popular than in any other country."

Q.: What does intensive study of a foreign language mean?

A.: It differs from the conventional manner not just in the fact that the period of learning is "condensed". The entire range of learning methods has been rebuilt to fit into this "faster process". So within a minimum of time you receive the maximum of effect.

Suppose you have to go to France, Bulgaria or Kuwait, and you have to understand the country's language. The methods of intensive study make it possible within a short time—a month – to teach a person to communicate fluently in a foreign language. I can't vouch that after the first month of study, you'll be able to give a lecture or read Balzac in the original, but you can speak with ease in the streets of Paris or Sofia. This is guaranteed. – The first cycle – the one which has been most elaborated for all languages – usually consists of 100 hours of study. In the latest variant of Georgi Lozanov's method used in Bulgaria, it consists of 96 hours. In our variants, it is 120 hours. They are so distributed that a person studies 4-4.5 hour's daily for a month. Whenever necessary, the course can be extended to 1.5-2 months.

Q.: What exactly, and in what volume, does the student take in during this time?

Ex. 5 Fill the gaps.

produced suburb broaden human tyres congestion brief
annual acceptable disadvantages noise below layout lack pedestrian growth cheap created apart set

1. We are very busy and often feel a ... of time. 2. He reads a lot and in this way tries to ... his outlook. 3. A ... should cross the street at the green light. 4. A lot of goods of high quality should be ... in the near future. 5 ... progress is closely connected with engineering progress. 6. New pneumatic ... are being tested. 7. The town is situated ... sea level. 8. The ... of the traffic was very loud along the highway. 9. The writer ... many wonderful characters in his works. 10. Their plan of reconstruction is ... as it can be carried out in a short period of time. 11. He could not answer all pun questions in his ... letter. 12. They were discussing the roads worked out in the designing office. 13. The road was being widened to avoid 14. It takes him much time to get to the office because he lives in the 15. The speaker told the audience about the rapid ... of heavy industry. 16. ... from studying the distribution of polluted zones the department is studying daily and seasonal variations. 17. At the Institute students can have dinner that is rather 18. She spends her ... vacations in the suburbs of Moscow. 19. The machine has serious ... , so it cannot be accepted for mass production. 20. The new traffic rules ... by the city council proved to be more efficient and resulted in the reduced number of road accidents.

Ex. 6. Назовите слова, от которых образованы следующие производные слова и переведите их.

Briefly, laborer, annually, cheaply, congestion, creative, reduction, humanity, pleasantly, propeller, acceptable, travelers, ruler

Ex. 7. Choose the right translation.

Briefly – краткий; кратко; краткость

Annually – ежегодный; ежегодно; ежегодник

Cheaply – дешево; дешевый; дешевизна

Congestion – перегруженность; перегруженный; перегружать

Acceptable – принимать; принимающий; приемлемый

Reduction – сокращать; сокращение; сокращенный

Creative – творчество; творческий; творить

Ex.8. Fill the gaps.

Annual, annually

1. The Academy of Sciences holds . . . meetings of its members. 2. He is the author of the . . . review published in the December issue of the magazine. 3. The date is celebrated

Lack, lacks, lacking

1. In the dry climate conditions the plants often die for . . . of water. 2. Counting the pages he found that five were 3. He is quite an efficient engineer but still he....the qualities necessary for this kind of work.

COLOURED ROADS

Imagine a city with its main transport arteries coloured: lilac, yellow, and white, blue, green. Fantasy? Not at all.

The State Research Institute of Glass in Moscow has developed a new asphalt filler. The addition of an appropriate dye can make it any colour of the rainbow.

This filler has been created by Russian scientists. The new material is light, wear-resistant and porous which eases the strain on car and truck tires in braking. Furthermore, it is an excellent reflector of light, especially at night, when it has a phosphorescent effect.

The asphalt filler will be used, above all, in marking dividing strips, gradients and street crossings.

AUTOMOBILE

The history of the automobile goes back several hundred years. One of the earliest attempts to propel a vehicle by me-

He will not expect you to be polite and to use correct grammatical phrases. He will be interested in you because you are a foreigner. If you say: "Will you have the goodness, sir, to direct me to the railway station at Charing Cross," pronouncing all the vowels and consonants beautifully, he will not understand you, and will think you to be a beggar. But if you shout, "Please! Charing Cross! Which way? » you will have no difficulty. Half a dozen people will give you directions at once.

The English language contains about 490,000 words, plus another 300,000 technical terms, the most in any language, but it is doubtful if any individual uses more than 60,000.

In written English, the most frequently used words are in order: the, of, and, to, a, in, that, I, it, for, as. The most used in conversation is I.

The most overworked word in English is the word "set" which has 158 noun uses, 126 verbal uses and 10 as a participial adjective.

LACONIC

A number of English words are derived from the characteristics of the peoples of certain places. A laconic man is a person of few words. He is blunt and brief in what he has to say. Now the Laconia's of Greece were a race that had this very characteristic. They inhabited the district of which Sparta was the capital, and they were noted for their concise and pithy speech. Once when an Athenian herald told them: "If we come to your city, we will raze it to the ground," the Laconia's merely answered, "If". Thus the name Laconia contributed to us our word laconic.

“IS IT POSSIBLE TO LEARN A FOREIGN LANGUAGE IN 24 DAYS?”

"Yes, it is," our correspondent was told by Professor Alexei LEONTYEV, D. Sc. (Philology and Psychology). "Pro-

the latest American TV series, it is clear that ... people have serious problems. In fact, people on ... sides of the Atlantic might have ... more difficulty in understanding the stronger ... dialects of their own country than in understanding an average speaker from the other country. Television, films and music have helped bridge the Atlantic and those minor difficulties which might occur are probably much ... than 40 or 50 years ago. One of the most obvious areas of difference relates to words ... with motoring. This is probably because cars developed separately, in each country. Of course, an American who asked for "gas" in a British "filling station" would get what he wanted, and in the ... way an Englishman who asked for "petrol" in a "gas station" would drive away with a full tank.

regional, much, especially, another, must, both, connected, comparatively, publish, common, few, same, complaining, fewer, complained.

SPOKEN ENGLISH AND BROKEN ENGLISH

If you are learning English because you intend to travel in England and wish to be understood there, do not try to speak English perfectly because, if you do, no one will understand you.

Though there is no such thing as perfectly correct English, there is presentable English which we call "good English", but in London nine hundred and ninety-nine out of every thousand people not only speak bad English but speak even that very badly. You may say that even if they do not speak English well themselves, they at least understand it when it is well spoken. They can when the speaker is English: but when the speaker is a foreigner, the better he speaks, the harder it is to understand him. Therefore the first thing you have to do is to speak with a strong foreign accent, and speak broken English: that is English without any grammar. Then every English person will at once know that you are a foreigner, and try to understand and be ready to help you.

chanical power was suggested by Sir Isaac Newton about 1680. It was little more than a toy consisting of a steam boiler supplying a steam jet turned to the rear.

However, the credit for building the first self-propelled road vehicle must undoubtedly go to the French military engineer, Nickolas Cugnot (Кюньо). Between 1763 and 1769 two steam-driven carriages were built and tried.

In 1784 the Russian inventor Kulibin built a three-wheeled carriage. In his vehicle he used for the first time such new elements as brakes, rollers and a gear-box.

The first Englishman to build a full-size self-propelled vehicle for use on the roads and to obtain practical results was Trevithick (Тревитик). Between 1798-1800 he built several working models.

Up to 1860 most all road vehicles were powered by steam engines which ran at slow speeds. In 1860 Lenoir (Ленуар) of Paris built an internal combustion engine which ran on city gas, the gas being ignited by an electric spark. In 1866, Otto invented the type of four-stroke cycle engine which is used today.

Slowly but surely the auto industry is perfecting a number of alternatives to the conventional engines found in almost all of today's passenger cars.

Two prime factors lie behind the search for different engines – the necessity to reduce air pollution by requiring cleaner auto exhaust and the desire to produce cars that will run farther on a gallon of fuel.

While basic research is continuing on electric and steam-powered engines, it is the diesel, turbine and Stirling that are current industry favorites.

Diesels get better mileage than gasoline engines, and the fuel is usually cheaper.

In 1890's. Rudolf Diesel, a German, invented the engine that bears his name. As air is drawn into the engine and compressed internal temperatures rise, and pressures reach two to

three times those in a gasoline engine. The extreme pressures have meant that diesels usually are much larger and heavier than gasoline engines of the same power potential.

The disadvantages of diesels as passenger car engines are slow performance, noise and smoke.

All the companies investigating diesels are trying to reduce noise and smoke, but the problems are not yet entirely solved. Even the expensive Mercedes clatters when started on a cold morning. And the warm up period for all diesels seems too long to drivers accustomed to gasoline models.

The turbine and Stirling are multifuel engines, capable of running on any liquid that will burn, including such exotic types as peanut oil and perfume. This would be a major advantage if severe petroleum shortages develop.

The turbine cars now operating are hand-built models that cost more than 1 million dollars each. Alloys of precious metals of high durability are still required for certain vital turbine parts. Engineers believe that progress in ceramics holds the key to making turbines practical alternatives to present-day engines.

Experts say that the Stirling is the most promising among the three favoured engines.

The Stirling concept, first offered more than 150 years ago by a Scottish clergyman, involves external instead of internal combustion.

In 1816 Robert Stirling patented a new engine for pumping water out of mines and quarries. It could run on almost any fuel, he boasted—including whisky. Indeed the parson had such faith in his engine that he often cut his Sunday sermons short to work on it. However, when Stirling died in 1878 at the age of 88, his engine was still unperfected. Soon it was totally overshadowed by the newer gasoline-powered internal combustion engine.

Unlike typical internal combustion engines, the Stirling engine is powered by heat from an external source. In the new

UNIT V IT IS INTERESTING TO KNOW

HISTORY OF THE ENGLISH LANGUAGE

Two thousand years ago the British Isles were inhabited by speakers of Celtic languages. These languages still survive in parts of Wales, Scotland, Ireland, and Brittany in France. The Celts were conquered by the Romans, and from 43 BC to about AD 410 Latin was the language of government. Between the fourth and seventh centuries A.D., the Anglo-Saxons arrived from what is now northern Germany, Holland and Denmark, and occupied most of England, and parts of southern Scotland. In some parts of Wales, Scotland and Ireland, people still speak Celtic languages. The Anglo-Saxons spoke a Germanic language which forms the basis of modern English. This language was modified by the arrival of Viking invaders in the north and east of the country, who came from Norway and Denmark between the eighth and eleventh centuries. The mixing of the two languages greatly enriched the vocabulary of English.

In 1066 England was conquered by the French-speaking Normans, and French became the language of government. For the next three hundred years three languages co-existed. The aristocracy spoke French; the ordinary people spoke English, while Latin was used in the church. Modern English evolved from the mingling of the three tongues.

Ex. Fill the gaps.

British and American English.

It has been said that the British and Americans are two peoples separated by a ... language. However, the differences between British and American English are ... small. Although British newspapers occasionally publish letters from angry elderly citizens ... that they are unable to understand a word of

in 1818. Its light-grey sandstone ... had been painted white to cover the effects of fire. It has been white ever since. Some people think it was from its white walls that the home of the ... of the USA got its name. Other people believe that it got its name earlier even ... the fire when it was still grey. Even then its grey sandstone walls looked white next to the ... brick walls of other ... buildings. Nevertheless the president's home was ... named the White House in 1902.

red, was carried, public, building, remaining, spring, moved, was laid, completed, was elected, sandstone, submitted, conveniences, on fire, prize, officially, exterior, walls, reconstructed, president, before.

design, hydrogen gas is heated by a burner, which can run on virtually all kinds of fuel. Hydrogen then expands, enters one cylinder and pushes a sliding piston. As piston moves, it forces gas out of the other end of the cylinder; the emerging gas is cooled and then moves towards an adjacent cylinder where heat is applied once more and the process is repeated.

Engineers point out that a Stirling engine would be quieter than an equivalent internal combustion engine, would emit less toxic gases, and would use fuel more economically. Having no need for valves or cams, it would also have fewer parts. Stirling's old dream might yet become reality—perhaps by the end of the twentieth century.

Now, since experts seek fuel-saving, less-polluting alternatives to the modern auto engine, Stirling's machine has started a new life, they show great interest in the work of a giant Dutch electronics firm, which has tested Stirling prototypes in boats, large pumps (to help dry out Holland during 1952's floods) and even buses. In 1972, Ford signed an agreement with the firm for joint development of a Stirling engine for passenger cars.

As for electric cars, several types of small battery-powered vehicles are in production, but it is most unlikely that they will replace more conventional vehicles.

Yet, there is still opinion in the auto industry that the conventional gasoline powered engine—the type in almost universal use now—will continue to dominate until or unless outside circumstances dictate otherwise.

Ex.1. Answer the questions.

1. What idea of propelling a vehicle did Isaac Newton suggest? 2. Who built the first self-propelled road vehicle? 3. What kind of carriage did a Russian inventor Kulibin build in 1784? 4. Who built several working models of the self-propelled vehicle at the end of the 18th century? 5. When was the four-stroke cycle engine invented? 6. What are the main

factors that are important in the search for different engines? Why are these factors very important? 7. What are the advantages of diesels over gasoline engines? 8. What are the disadvantages of diesels? 9. Will the turbine cars be widely used in the near future? 10. When was the Stirling engine invented? 11. Where is the Stirling engine being used now? 12. Will electric cars replace the conventional vehicles? 13. What kind of engine will dominate in the near future?

Ex. 2. Соотнесите факты, относящиеся к истории развития автомобильного двигателя, о которых говорится в тексте, с датами, приведенными ниже.

1680, 1763, 1784, 1798, 1860, 1866, 1890

Ex. 3. Translate the following expressions.

an attempt to use the power of the sun; the power of flowing water; to ignite fuel; the advantages of a four-stroke cycle engine; conventional layout; conventional mode of transportation, to continue attempts; to draw fuel; water drawn from the lake; to compress gas; air compressed in the reservoir; under the pressure of external forces; to keep the liquid under pressure; heavy alloy; thick glass; quiet performance; virtually noiseless performance; the attempt to improve performance; to be accustomed to such conditions; liquid fuel; the state of liquidity; to continue to increase durability; durability of the alloy; to be made of aluminium alloys; to hold key positions; the key to the room; among other benefits; among young people; the concept of development; external atmosphere; safety glass; to save time; adjacent room; to repeat the attempt; to repeat rules; quiet operation; to live in a quiet suburban house; private opinion; brief exchange of opinions

Ex. 4. Fill the gaps.

quiet exhausted among alloy opinion promise liquid accustomed circumstances cooled rear compressed signs continued conventional

On the north side of Trafalgar Square, stands the National Gallery, one of the world's ... art galleries. It has extensive collections of various European schools of art.

People like to ... in the centre of the square to sit around the fountains, to watch pavement artists, or to eat their lunch and feed the pigeons.

Like Hyde Park. Trafalgar Square is often mentioned in the press as a place where mass ... and demonstrations are held. Each year ... of people from all over Great Britain take part in the peace marches that have become a tradition of the anti-war movement.

Thousands, leading, century, meetings, weel-known, destroyed, gather, battle, scenes, protection, killed, triumphant, placed

WHITE HOUSE

The White House is the ... of the president of the United States of America. It is situated in Washington. The White House was the first public ... which was built in the capital of the USA. Its cornerstone ... in 1792 nearly one year before George Washington laid the cornerstone for the Capital Building.

Architect James Hoban ... plans for the building and received a 500 dollar ... for his work.

In 1800 President John Adams and his wife ... into the building. At the beginning of the 19th century it was a light-grey structure made of The construction of the building hadn't been ... by that time. There were almost no ... in the house. There were no bathrooms and water ... by hand into the house from a ... which was 5 blocks away.

Work continued on the structure when Thomas Jefferson ... President. In 1814 the building got The interior was reduced to ashes, part of outer ... were destroyed and the ... walls were blackened. Later the building was ... and reopened

ins of the old building were cleared away and the new work was begun. When Wren made a start, he picked out a ... from the heap of ruins and found on it a word in Latin which ... "I shall rise again". So he made that first stone of the New Cathedral. That was on June 21, 1675.

It took him thirty-five years to ... the Cathedral. All that time, while doing many other things besides, he laboured at this - his greatest work. He was very poorly paid. He didn't always get his wages. But ... these difficulties all was splendidly finished.

The Whispering Gallery which is over 100 feet above the floor of the Cathedral, is remarkable for its A person standing at the entrance of the Gallery can hear clearly what is said on the opposite side, 107 feet away. Beneath the centre of the dome is the tomb of Lord Nelson ... at the battle of Trafalgar.

Sir Christopher Wren, the great architect of St Paul's, died in 1723, aged 91, and was buried in the building which his ... and toil had created.

Acoustics, destroyed, genius, architect, in spite of, discovery, famous, stone, killed, build, wish, repair, meant

TRAFALGAR SQUARE

At the beginning of the nineteenth England defeated French and the Spaniards in a great sea ... at Trafalgar. It was a victory of the British nation over Napoleon. Admiral Nelson was ... in this battle. Trafalgar Square was made to commemorate the victory of Nelson at Trafalgar. The Nelson Column was erected in 1842.

The statue of Nelson on the top of the column was made by a ... English sculptor Edward Bailey. Round the base there are four bronze carvings representing ... from famous naval battles. Many years passed by before the four great lions were ... at the foot of the Nelson Column.

1. Gradually he got . . . to physical labour. 2. The . . . of the two metals proved to be very strong. 3. He had to drive very slowly as there were many small children . . . the passengers. 4. Will you tell me under what ... the accident has occurred? 5. This device works with the help of . . . air. 6. He . . . his attempts to perfect the design. 7. The pedal was of a . . . size. 8. Can an engine be . . . with cold water? 9. The article says that the resources of some minerals are about to be 10. This engine works on . . . fuel. 11. He is a very skilled engineer and we have a high . . . of his work. 12. Plus and minus are the . . . used in arithmetic. 13. I can't . . . anything but I'll try to help you. 14. There was no wind and the river seemed ... 15. The . . . wheel must be changed if you don't want to get into an accident.

POLLUTION-FREE ELECTRIC CAR

A Japanese automobile firm has announced successful development of three-wheel electric light van for pickup and delivery service and has started production of the car for full-scale marketing.

Recently, development work on electric cars has been accelerated in Japan as a principal means of eliminating environmental damage caused by automobiles through air pollution and noise. The electric car will be the first to be used on the streets.

This car will be employed mainly for delivery of newspapers, mail and milk, as well as for light loads in a limited area, such as factory premises. It has a motor and four 12-volt improved lead batteries as the power source.

21st - CENTURY ESCALATORS

The running spiral principle has prompted our experts of a special construction bureau in St.Petersburg to plot a new technical design of escalators to be used in residential and public buildings. What advantages will they have?

"These escalators readily suit highrise buildings, the escalator belt girdling round the lift shaft", Yuri Mikhailov, explained. "Besides,-the construction of such buildings becomes simpler and less cost.

We were the firsts in the world to develop production of super-long escalators, up to 65 m long. Serially produced escalators have served as a basis for designing new models which won't become obsolete even in the 21st century.

In particular, travelators - moving pavements - have likewise become a prototype of machines of the future. They have first appeared at the Pulkovo Airport. A horizontal belt carries passengers, quickly and comfortably, from the platform to the air terminal.

We have begun designing a new generation of travelators that move at a speed of 15 kmph. They can be used in streets and at vast exhibition complexes. By the way, new durable materials will allow this kind of municipal transport to operate outdoors in any weather or season.

Another all-weather machine is a moving accommodation ladder being designed by some shipbuilders. As ship hulls become taller, the automated ladder will also grow taller.

Similar machines are to be designed for Aeroflot.

The construction specialists are also working to improve the design of metro escalators. The technical and operational characteristics of the latest modification that has recently gone into serial production are better than previously produced models. The run between-scheduled repair has been increased by nearly 20000 km. A wiser arrangement of the units has simplified maintenance and the escalator now moves more smoothly, with less noise.

The moving staircase of today is a basis for designing a new generation of escalators. For example, nearing completion is the designing of a two speed escalator. During peak hours it will move at a speed of 0, 94 metres per second, and slow down

Exercise:

Choose the best answer to each question or the best way to complete a statement

1. Which of the following is true?

a England is bigger than Scotland in area but smaller in population.

b England is smaller than Scotland in area but much greater in population

c. Scotland is bigger than England in area and in population.

2. Since 1603 England and Scotland have not been at war because

a Scotland became an independent kingdom

b the English language is spoken ail over Scotland.

c the countries have been under the same King or Queen.

3. The mystery of Loch Ness still continues today because

a Nessie ran off with a sheep in her mouth.

b the footprints on the loch side were not explained.

b it is very difficult to explore.

4. In the last few years

a the Loch Ness Monster has not been seen.

b new interesting facts have been collected by scientists.

c a lot of photographs of Nessie have been taken.

ST PAUL'S CATHEDRAL

In the West End of London one can see the ... St Paul's Cathedral, the masterpiece of the well-known English ... Christopher Wren. The old building of the Cathedral was sadly in need of ... and Christopher Wren was called on to carry out repairs and alterations, but he was prevented from doing this by the Great Plague and the Great Fire of London that ... the old cathedral. Nearly eight years passed after the fire before the ru-

at the very top of the cliff? 8) When and by whom was Montreal founded? 9) What is the most important manufacturing city in Canada? 10) What is the most important Canadian port on the Pacific Coast?

SCOTLAND

North Sea, the Loch Ness Monster and whiskey are just a few of the things Scotland is famous for.

Although it forms part of Great Britain, Scotland has a character of its own. It is bigger than England in area but its population is only about 6 million.

Scotland was an independent kingdom, often at war with England until 1603.

Since 1603 England and Scotland have been under the same monarch. English is spoken all over Scotland with different accents.

One of the traditional Scottish legends is that there is a monster in Loch Ness. Hundreds of people have reported seeing a creature in the lake. Though it turns out that people see trees or waves in the water, there are several cases that cannot be explained. The lake is 23 miles long and very deep, so it is very difficult to explore, and the mystery of the Loch Ness Monster still continues today.

Nessie became a national joke and is on many local postcards and T-shirts. Sometimes she is running off with a sheep in her mouth, sometimes she is blowing the bagpipes. From time to time young people make mysterious footprints on the loch side or produce photographs of the Monster for fun. In the last few years, however, there have been several serious expeditions to Loch Ness and a lot of very interesting facts have been collected. It is very hard now that the monster does not exist.

at off peak periods. This regime will help save electric power and also increase periods between major repairs. New machines are designed to be assembled from modules

Ex. Read the text and find the right answer.

If you like looking at places and people, travel by bus. Buses do not go very fast in the centre of London because there is always much traffic but it does not matter if you are on holiday. Normal London buses are red and are double-deckers. They have a driver and a conductor.

There are two sorts of bus stop: compulsory and request. A compulsory bus-stop sign means that all the buses on the notice stop here. A request bus-stop sign means that a bus only stops here if someone wants to get on or off. The request bus-stop sign is red. If you want to catch a bus at a request stop, put your hand out.

To find out where a bus is going, look at the sign on the front, the side or the back of the bus. You will find a full list of the places on the bus route on a notice at the bus stop.

When you have got on the bus the conductor says: "Fares, please!" You say where you want to go; he tells you how much to pay; you pay him and he gives you a ticket.

There are other sorts of buses in London, too. The red single-decker buses are called Red Arrows. They have a driver but no conductor. You pay the same price for a short journey as for a long journey.

The green buses are called the Green Line. These buses cross London but they do not stop very often. They are mainly for people who live a little way out of London and who travel in and out.

1. Why do buses move so slowly about the centre of London?

- a. to let passengers look at places and people
- b. there are too many cars and buses, especially in the centre

- c. there is a strict speed limit for double-deckers
 - d. huge double-deckers can only move at a very low speed
2. What kinds of buses run about London?
- a. only red single-decked buses
 - b. red double-deckers and green buses
 - c. green buses run outside London and red buses within the city
 - d. red buses (single-and double-decked) and green buses whose route partly covers London suburbs
3. How much does one pay on London buses?
- a. fares charged on all city buses are standard while for travelling out-side London one has to pay extra price
 - b. fares for passengers getting off at request stops are higher
 - c. fares charged on double-deckers are standard while on Red Arrows they depend on the distance one travels
 - d. fares On double-deckers depend on the distance one travels while on Red Arrows they do not
4. The Green Line is
- a. a suburban bus route
 - b. a city route with green buses on it
 - c. the name of one of London streets
 - d. a bus route which crosses London and goes a little way out of the city
5. On London bus routes
- a. there are no conductors
 - b. there are no conductors on Red Arrows
 - c. there are no conductors on red double-deckers
 - d. there are no request bus stops

THE CHANNEL TUNNEL

Ex. Fill the gaps:

During the Ice Age, Britain was joined to the continent of Europe. About 15,000 years ago the sea began.....the nar-

text. Translate them into Russian.

- 1) You can travel for hundreds of miles in Canada without coming to
- 2) Lower Town spreads along a narrow strip of land between
- 3) This large hotel is built in the style of....
- 4) Here buildings and houses are crowded
- 5) A large forest-covered hill rises in

Ex. 3. Find English equivalents in the text corresponding to the following.

- 1) Мы начинаем свое путешествие в старом Квебеке.
- 2) Монреаль — самый большой и важный морской порт в Канаде.
- 3) Монреаль был основан более трехсот лет тому назад французскими поселенцами.
- 4) В городе много прекрасных парков и садов.

- 5) Много красивых домов расположено вдоль канала.
- 6) Деловые и промышленные районы Ванкувера расположены около гавани.

Ex. 4. Agree or disagree to the following statements.

- 1) Canada, this vast country, has a lot of big cities.
- 2) Quebec was founded as a French trading port and was the second permanent settlement in Canada.
- 3) Most of the houses, churches, shops and public buildings of Quebec are in Lower Town.
- 4) The greatest part of Montreal is on an island, which is joined to the Mainland by several bridges.
- 5) Ottawa was founded at the end of the 19th century.
- 6) It grew up as a lumbering town, and was later chosen as Canada's capital.

Ex. 5. Find the sentences in the text which tell us about Upper and Lower Towns in Quebec and translate them into Russian.

Ex. 6. Answer the following questions.

- 1) What is the capital of Canada and where is it situated?
- 2) Are there a lot of parks and gardens in the capita
- 3) Where is Rockcliffe Park situated?
- 4) When was Ottawa founded?
- 5) Where is Quebec located?
- 6) Is Quebec divided into two towns? What are they?
- 7) Why was a great stone fortress built

the time the Rideau Canal was built, early in the nineteenth century. It grew up as a lumbering town, and was later chosen as Canada's capital.

Toronto. A bus ride from Ottawa brings us to the small city of Kingston, on Lake Ontario. From here we travel by boat to the great port city of Toronto, near the western end of the lake. About 672,000 people live in Toronto, which is Canada's second largest city. The outskirts of Toronto are developing very rapidly, and the metropolitan area that includes Toronto now has a population of nearly two million. As we sail into Toronto's harbour, we see coal docks, wall houses, and railroad yards along the shore. Beyond the harbour are the commercial and industrial sections of the city. Toronto is the second most important manufacturing city in Canada. It is the printing and publishing centre for the entire country. From Toronto's factories come electrical goods, metal products and food products.

Vancouver. Finally, we visit Vancouver, a city on the Pacific Coast. Although Vancouver is less than a hundred years old, it is already the third largest city in Canada. About 800,000 people live in the metropolitan area that includes Vancouver. About half of them live within the city. Vancouver's excellent harbour has helped to make this city the most important Canadian port on the Pacific Coast. If we walked along the water front, we should see large freighters being loaded with wheat, wood pulp, lumber, apples, and canned fish. A large suspension bridge stretches across the entrance to the harbour. It is more than fifteen hundred feet long.

Ex. 1. Translate the following groups of words.

along a narrow strip of land; at the very top of the cliff; to earn one's living by; to board a ship; a large forest-covered hill; commercial and industrial section of the city; printing and publishing centre; to guard the city from enemy attack

Ex. 2. Complete the following sentences according to the

row line of land joining present-day England and France, and Britain became an.....Plans were being made.....A Britain to the continent of Europe again. Now such a channel has been built

Across the English Channel, only twenty miles wide at its..... point, go several millions of passengers every year. The passengers, cars, goods go by.....and air and the trains by sea - on train ferries. A few people even.....The cross-Channel traffic, especially private cars, is..... every year, and it is becoming more and more.....to provide for it. This is particularly true of the summer holiday.

A new way of the Channel was therefore necessary. The best plan was thought of nearly a century.....: a railway tunnel under the In 1881 a tunnel was actually started on both the French and English sides, but the British.....stopped the work two years later.

Several times since then the idea was reconsidered. After the Second World War a Channel Tunnel Study Group examined the problem.....In 1960 the Group made its report. The results of economic and..... research went into the report. After careful consideration of the report the Group recommended a rail tunnel.

The ideas formulated in that report were realized in the project started, however, many years later. The tunnel was finished in December 1990. Its.....is 32 miles between entrances, the part under the sea is 23 miles long. Before long trains will be running at 60 to 70 miles per.....under the narrow sea which divides Britain from France and the continent of Europe. London and Paris are about 4 hours 20 minutes apart by train via the tunnel, and Britain is truly ... an island.

In detail, to join, Channel, sea, island, hour, season, swim, engineering, ago, no longer, length, to cover, difficult, crossing, creasing, narrowest, government.

UNIT III SCIENTISTS AND INVENTORS

A FEW UNITS NAMED AFTER FAMOUS SCIENTISTS

Words like volt or watt have become part of our language so completely that we sometimes forget that these are the names of famous scientists.

Let us recall a few such units...

An ampere is the unit of electric current in common use. It is that current which, when passed through a solution of silver nitrate in water, will deposit silver at the rate of 0.001118 grams per second. The unit is named after Andre-Marie Ampere (1775 — 1836), the famous French physicist and mathematician.

A bel is a unit for comparing two values of power. It is ten times the size of the more frequently used decibel, which is used as a measure of response in all types of electrical communication circuits. The unit is named after Alexander Graham Bell (1847-1922), the American inventor of the telephone.

A coulomb [ˈku:bm] is a unit of electric charge equal to the quantity of electricity transferred in one second by a current of one ampere. It is named after Charles Augustin de Coulomb (1736–1806), the prominent French physicist.

A curie (Cu) [kjuo'ri] is the unit of the measurement of radioactivity. It is named after Pierre and Marie Curie, French physicists.

A farad [ˈfaered] is a unit of electrical capacitance. It is named after Michael Faraday (1791–1867), the famous English physicist.

A gal is a unit of acceleration used in describing the effects of gravity. It is an acceleration of one centimetre per second each second. The unit is named after Galileo Galilei (1564–1642), the famous Italian scientist.

is the Chateau Frontenac. This is a large hotel built in the style of a French castle. From the hotel we can see much of Lower Town and the harbour. Steep stairways and narrow, winding streets lead from Upper Town to the lower part of the city. Here buildings and houses are crowded close together.

Many of the people of Quebec earn their living by working in paper-mills and clothing factories. Others are employed in tobacco factories, tanneries and brickyards.

Montreal. Now we board a ship and sail about 160 miles up the St Lawrence to Montreal, Canada's largest city. Montreal was founded more than three hundred years ago by French settlers. Today, over one million people live in this great city, and another million live in its suburbs and outlying communities. The greatest part of Montreal is on an island, which is joined to the Mainland by several bridges. A large forest-covered hill rises in the centre of the city. This is Mount Royal. If we climb to the top of Mount Royal and look toward the river, we can see Montreal's industrial and business centres.

Montreal is the most important manufacturing city in Canada. Electrical goods, railroad equipment and clothing are produced in its factories. There are many sugar refineries in the city. Near the docks along the river, there are large grain elevators and flour mills. Although Montreal is located about a thousand miles from the Atlantic Ocean, it is the largest and most important seaport in Canada.

Ottawa. About one hundred miles west of Montreal is Ottawa, the capital city of Canada. On a hill overlooking the Ottawa River are three large stone buildings. They are the Parliament buildings. Rising high above the central building is the famous Peace Tower. There are a lot of lovely parks and gardens in the city. Many fine homes are located along the Rideau Canal, which flows through the heart of Ottawa. In the north-eastern part of the city, near the Ottawa River, is Rockcliffe Park. It covers about one hundred acres. Ottawa was founded at

from the Virginia plantations was by car. 6) Norfolk is the capital of Virginia.

Ex. 4. Find the sentences in the text which tell us about the life of the old Virginia plantations in colonial times. Translate them into Russian.

Ex. 5. Answer the following questions.

1) In whose honour was the colony of Virginia named? 2) What was the first lasting English settlement in America? 3) What was the capital of Virginia, when it was the largest of the colonies? 4) Who shows visitors through the buildings and gardens? 5) What is the main and biggest crop in Virginia? 6) Where do people work in the Southern state?

7) What is the largest city of Virginia?

CITIES OF CANADA

You could travel for hundreds of miles in Canada without coming to a large city. In fact, this vast country has only about a dozen really big cities. All of these are in southern Canada, where there are important industries and farm lands.

Let us travel through the southern part of the country and visit some Canadian cities.

Quebec. We begin our trip in old Quebec. This city is located along the St. Lawrence River about eight hundred miles from the Atlantic Ocean. Quebec was founded as a French trading port in 1608. It was the second permanent settlement in Canada. Today about 360,000 people live in the metropolitan area that includes Quebec. Nearly half of these people live within the city. Part of Quebec is built on a cliff that rises over three hundred feet above the river. This is called "Upper Town". The other part of the city is known as "Lower Town". It spreads along a narrow strip of land between the cliff and the river. Most of the older homes, churches, shops and public buildings of Quebec are in Upper Town. At the very top of the cliff we see the Citadel, a great stone fortress that was built to guard the city from enemy attack. Another interesting building

A kelvin is a degree on the thermometric scale that takes absolute zero as its starting point (0° K). It is named after William Thomson (1824–1907), who later became Lord Kelvin, a British professor, the inventor of mirror galvanometer.

A newton is the unit of force in the meter-kilogram-second measurement system. It is named after Sir Isaac Newton (1642–1727), the English scientist, a professor of Cambridge University.

An oersted [$^{\circ}$ a:stod] is a unit of magnetic field intensity. It is named after Hans Christian Oersted (1777–1851), the Danish physicist.

A roentgen [$^{\circ}$ rontjan] is a unit of radiation. It is named after Wilhelm Conrad Roentgen (1845–1923), the famous German physicist.

A volt [voul] is the difference of potential between two points if one joule of work is required to transport one coulomb of charge from one point to the other. It is named after Alessandro Volta (1745–1827), the Italian physicist.

A watt [wot] is a unit of power. It is named after James Watt (1736–1819), the English inventor of a steam-engine.

Ex. Read the text and find the answer.

The first suggestion that a machine for mathematical computation could be built was made more than a hundred years ago by the mathematician Charles Babbage. We now realise that he understood clearly all the fundamental principles of modern computers.

Babbage was born in Devonshire, England, 1792. He didn't receive a good education but he taught himself mathematics so well that when he went to Cambridge, he found that he knew more algebra than his tutor.

At that time mathematics at Cambridge was still under the influence of Newton and was quite unaffected by the contemporary developments on the continent

Charles Babbage was outstanding among his contemporaries because he insisted on the practical application of science and mathematics. For example, he wrote widely on the economic advantages of mass production and on the development of machine-tools.

In 1812 he was sitting in his room looking at a table of logarithms which he knew to be full of mistakes, when an idea occurred to him of computing all tabular (табличный) functions by machinery. Babbage constructed a small working model which he demonstrated in 1822.

The Royal Society supported the project and Babbage was promised a subsidy.

In 1833 he began to think of building a machine which was in fact the first universal digital (цифровой) computer, as the expression is understood today.

Babbage devoted the rest of his life to an attempt to develop it. He had to finance all of the work himself and he was only able to finish part of the machine though he prepared thousands of detailed drawings from which it could be made.

Babbage wrote more than 80 books and papers, but he was misunderstood by his contemporaries and died a disappointed man in 1871.

1. Who did Charles Babbage owe his excellent knowledge of math's to?

- a. to his teacher of math's in Devonshire
- b. to no one but his talent and effort
- c. to his tutor at Cambridge
- d. only to his good education

2. Charles Babbage stood out of his contemporaries because he_____.

- a. wrote widely on science developments on the continent
- b. supported Newton's ideas.
- c. insisted that science and math's should be widely taught at all kinds of Universities

work at chemical plants near Richmond, the capital of Virginia. Others work in nylon, rayon and other textile plants. The largest city is Norfolk, which is a shipbuilding centre and coal port.

Virginia is sometimes called "the Mother of Presidents". Washington, Jefferson, Madison, Monroe, Harrison, Tyler, Taylor and Wilson were all born in Virginia. Among the famous places visitors want to see Mt. Verdon and Monticello, the homes of Washington and Jefferson.

Virginia's greatness is not all in the past. It is again gaining some of its old importance. Northern Virginia is crowded with cities and towns to which people from Washington have spread. More and more people from the thickly inhabited North will probably push southward to make their homes in this pleasant.

Ex. 1. Translate the following groups of words.

to be named in honour of, to show visitors through, to get a picture of life, the main crop on the plantations, to bring many changes to, a shipbuilding centre and coal port

Ex. 2. Complete the following sentences according to the text. Translate them into Russian.

1) The colony of Virginia was named 2) Jamestown was the first lasting English settlement... 3) Many years later government explorers ... 4) Guides dressed in colonial costumes .. 5) Visitors get a picture of life in colonial times by ... 6) Railroads, electric power from waterfalls, coal and fertilizers are among the things that....

Ex. 3. Agree or disagree to the following statements.

1) In the summer of 1987 many visitors came to celebrate the 380th anniversary of the founding of Jamestown. 2) Jamestown was the third lasting English settlement to be established in America, 3) It was a large village on the James River. 4) Williamsburg was the capital of Virginia, when it was the largest of the colonies. 5) For 100 years or more most travel to and

the summer of 1987 they came to celebrate the 380th anniversary of the founding of Jamestown. Jamestown was the first lasting English settlement to be established in America.

Jamestown was a little village on the James River. It lasted nearly 100 years. In course of time marsh grass and bushes grew over its ruins. Many years later government explorers dug up the ground and found farm tools, kitchen utensils, and foundations of old buildings. These and other relics are now on exhibition for visitors.

Only a few miles from Jamestown is Williamsburg. It was the capital of Virginia in 1708, when

Virginia was the largest of the colonies. The Colonial Capitol, the Governor's Palace, Raleigh Tavern, and many of the houses and shops of Williamsburg have been rebuilt. Guides dressed in colonial costumes show visitors through the buildings and gardens.

Visitors also get a picture of life in colonial times by visiting some of the old Virginia plantations. Near each big plantation house were other buildings — the kitchen, smokehouse, dairy, coach house, stables, carpenter and weaving shops, and school house. Farther off from the main house were the cabins of the slaves.

Each plantation was a little town in itself. For 100 years or more people travelled to and from the Virginia plantations mostly by boat. Ocean-going vessels loaded with bulky hogsheads or barrels of tobacco at each planter's landing sailed off for London. Tobacco was the main crop on the plantations.

Railroads, electric power from waterfalls, fertilizers and coal are among the things that have brought many changes to Virginia. Tobacco is still the biggest crop. But Virginia ranks only the third in tobacco production. Cattle and poultry raising are increasing.

More and more people are working at factories. Many

d. realized the importance of practical application of science and math's

3. When did the idea of a computing machine first come to Ch. Babbage?

a. in 1822

b. in 1812

c. in 1833

d. in 1871

4. How did the Royal Society react to the demonstration of a small working model of a computing machine developed by Ch. Babbage?

a. The project was approved but they refused to finance it.

b. The project was approved; even a decision was passed to support it financially

c. Ch. Babbage was misunderstood by its members.

d. The Royal Society refused either to approve or to finance the project.

5. Why did Babbage die a disappointed man?

a. He was not recognized by his contemporaries.

b. He didn't manage to solve a number of problems he had set himself.

c. He had lost some detailed drawings from which a computer could be made.

d. Nobody understood the expression "digital computer".

Read the text and enumerate all Edison's inventions.

THE WIZARD OF MELNO PARK.

In 1877, an American, Thomas Alva Edison, made a recording on a little machine which he had invented, and played it back to himself. Although he knew that he would hear them, he was astonished just the same when his own words were spoken back to him. It was a historic moment, so you may think that he took something very important - a famous passage of

literature, for example, for his first recording. Nothing of the sort; the words that came back to him were “Mary had a little lamb”.

The date of Edison’s inventions were August 12.1877. But it was not until November 17 of that year that news of it came to the world in the article in a magazine called "Scientific American". In December, Edison gave a demonstration of his talking machine in the office of the magazine and news of it spread very quickly.

RECORDED AND PLAYED BACK.

The first phonograph was not at all like a record player of our time. It not only looked very different, it could be said to have resembled the present day tape recorder.

When you listen to the records of today, you no longer have to turn a handle to keep the machine going, but this is just what had to be done with the Edison machine. It was a tinfoil phonograph, to the recording was made on tinfoil, which was put around a metal cylinder. By turning a handle, the cylinder was made to rotate while a needle cut a groove into the tinfoil.

As the cylinder was only nine centimeters long and ten centimeters in diameter, and as the groove cut by the needle was large and very rough, you would get only a few seconds of recording and it was very bad. But all the same it was a great step forward, a step that was to lead to the modern science of sound-recording.

Edison's machine was kept in England for many years at the Science Museum in London, but was later sent back to America in return for a model which was put in the same place

THE MAN BEHIND HIS INVENTION.

Thomas Alva Edison was born on the February 11.1847, in Milan, Ohio. Tom, or Al, as his family called him, was one of those children who are always asking "Why"? Ne did not

day, the 2730-meter long Golden Gate Bridge has been the second longest suspension bridge in the world.

In the beginning, it was the constructors' intent to paint the bridge a gold color, since they were setting new records and blazing new trails anyway. But later that idea seemed bizarre and a proposal was made to paint it a silvery-aluminium-shade instead, but that idea was shelved as well. The ultimate decision was made by Irving Morrow, a bridge consulting engineer: «The Golden Gate Bridge must be orange-red in color!». This was not only a question of esthetics. Orange and red paints contain lead, which retards rusting in steel. These two colors are commonly used in steel construction. In addition, orange-red is more easily visible in fog, a frequent phenomenon on the San Francisco Bay.

The Golden Gale Bridge connects the City and County of San Francisco with Marin County. 120.000 vehicles cross it daily. Only the hardest tourists undertake crossing all 2730 meters (1,7 miles). If you should venture to make the crossing on foot take a sweater or a jacket with you. As it is always very windy and cold on the bridge, even in hot weather. Seen from the San Francisco Bay, the bridge does indeed resemble a gate. Similar structures consisting of two towers and two lateral cross-bars can be found at the entrances to Buddhist temples. The orange-red color only accentuates the similarity, for this color is found in Chinatown on signs and on the eaves of arched roofs. Strange, you might think that a very Western city should have an essence that is strictly Eastern.

Do you like this text? What new information have you got from it?

STATE OF VIRGINIA

The colony of Virginia was named in honour of Elizabeth I of England, ‘the “Virgin Queen”’. It became the 10th state of the United States. This Southern state attracts many visitors. In

away by water from burst water mains. Ironically, it was precisely this disaster that came to the aid of many immigrants, especially the Chinese. They had fled Asia at the time of the 1849 California Gold Rush, only to find that life in their new homeland was no better than in their previous one. Outrageously high taxes on everything - shoes, laundry, pipe tobacco, even carrying a basket on one's head - was the price they had to pay for the right to call themselves Americans. But the immigrants were undaunted. They prospected for gold in places the white man had abandoned long ago and built the transcontinental railroads, and earned their cup of rice with the sweat of their brow. Asians were a particular object of scorn by immigration authorities. Questions such as. «Did your family have a dog in 1889?» were not among the most difficult. The 1906 earthquake, which was followed not only by a flood but a great fire as well, resulted in the destruction of all Immigration Department documents. The next morning, (figuratively speaking), the entire Chinese population became Americans. As a gesture of gratitude, they built the San Francisco Chinatown, the largest Chinese settlement outside of Hong Kong, and quite possibly the prettiest.

On your first visit to Chinatown, you will think you have walked into a warp in the fabric of time-space. When you walk through the Chinatown Gateway, decorated with undulating dragons, you step into another world. You are surrounded by Oriental faces with epicanthic lids, red lanterns, carved wooden roofs, and hieroglyphics! Panic grips you... you don't understand anything. But don't worry, here you can get by without language. You can shop without using words, and have a tasty meal in an inexpensive restaurant, and, using only sign language, find your way to the Golden Gate Bridge.

This truly great construction was built in the short time of four years five months and twenty-two days. It required 100.000 tons of steel and 25 million man-hours, and cost 35 million dollars. From May 27, 1937 the day it opened, to this

leave it there. If he had an idea he had to try it.

Once, when he was six, he tried to hatch out some goose eggs by sitting on the nest. When the father asked him what he was doing, the boy answered that if the mother goose could hatch eggs, so could he, since he was much larger. On another occasion, he was nearly drowned when he dived into the canal and swam under a barge to examine its structure.

At seven Al entered school but left it after three months, because the teacher thought that he was a dull boy. His mother then became his teacher. The boy loved books and he had a wonderful memory. Before he was nine he was collecting things. He kept them all in special place in the cellar. His mother gave him a book on science and he began to study it. It gave him ideas for all kinds of experiments.

One day he learned that balloons could fly because they had gas in them. So he thought he would fly too. He took a great dose of soda. He was sure he would fly at once. But the result was that soon he lay on the ground sick, and it seemed to him the world was going round him.

Edison began to work when he was twelve years old. His first job was a newspaper boy on a train.

On his first coming to Detroit in 1859, he visited the library in that town and was strongly impressed by the rows of books. He decided that he would read all the books and then he would know everything in the world. Mearuring off the shelf he decided to read a foot of books every week.

One winter night as Edison was selling his newspapers he did not hear the conductor call "all aboard". The train started, the boy caught the hand-rail of the last car and was dragged along. The conductor seized him by the ears and pulled him up into the car. The boy suddenly felt that something had happened to his ear. From that moment Edison began to grow deaf.

The newspaper boy soon decided to produce his own newspaper, and he did so each day while traveling on the train.

He published his paper in the baggage car. The paper was about the size of a handkerchief. He gathered news, printed and sold the newspaper all by himself, spending the money he got on books and experiments.

He also had a small laboratory in the baggage car of his train where he carried out experiments when he had the time. Nobody knew what he was doing there and the boy kept records of all his experiments. He was very careful but one day a bottle of phosphorus fell to the floor and set the car on fire. The conductor threw the boy, his newspapers and his laboratory off the train. Edison's career with the railway ended.

One day Edison saved the life of a child playing on the railway. The father of the child, a telegraphist, gave Edison lessons in telegraphy, and the next five years Edison worked as a telegraphist in various cities of the United States and Canada.

As usual, he spent all his free time experimenting. Many of Edison's most important inventions were made at his laboratory at Menlo Park New Jersey, twenty-five miles from New York City. His laboratory was full of batteries, chemicals and great numbers of instruments.

The inventor experimented from morning till night. Quite often he had no time to have breakfast or dinner. All his inventions were the results of endless work. He sometimes made thousands of experiments.

He slept very little making one of the hard benches his bed place. For months he slept no more than one or two hours a day. Yet he found time to read and he read not only scientific books but was fond of Shakespeare and Tom Paine as well. He had over 10,000 volumes in his home.

Edison continued to work all through his long life and attributed his success not so much to genius as to hard work - "Ninety-eight per cent perspiration and two per cent inspiration", as he liked to say.

UNIT IV COUNTRIES AND CITIES

SAN FRANCISCO

What you need in this city is a pair of strong legs and a pair of hiking shoes. Forty hills over 122 square kilometers is a lot even for such a mountainous spot as California. Dedicated tourists see the city on foot, but others use the most diverse public transportation system in the United States: taxis, trolleys, buses, trams, the Metro («BART»), and cable cars that will take you anywhere in the city in less than an hour. Even the most determined pedestrians and drivers will crowd aboard a dark red cable car at least once in their life for an unforgettable trip. A touching and nostalgic method of transportation that has not changed substantially in the last hundred years, cable cars climb with effort to the top of a hill, then roll slowly down without stopping to catch their breath, only to start again up the next hill. Cable cars have no doors, so passengers are free to exit at any time.

San Francisco residents are used to the terrain, and so do not notice most of the hills, and ignore all but seven, thus explaining one of San Francisco's nicknames, «The City on Seven Hills», but more often it is just called «The City», with the prettier official name set aside for tourist maps and formal occasions. Its 750,000 residents speak 103 languages. Add to that number nine million tourists every year, and you have a couple of dozen additional languages. The hotel rooms here are the most expensive in the United States and the tips are the highest, but that has never stopped the tide of visitors.

It is said that the City has an uncanny ability to turn failure into success. In the 20th century alone, it has been through two destructive earthquakes, one in 1906 and the other in 1989. The one at the beginning of the century was much more trying. The city was left in ruins, and what was left standing was swept

state university and appointed a commission with Jefferson (7)... to select a site and draw up plans for its design and organization.

Not surprisingly construction went forward with expedition: the first 68 students arrived for the opening (8)... on March 7, 1825 – just 16 months before Jefferson's death.

Jefferson's earliest design for the University is a site plan (9) ... about 1814-1815 showing a series of nine pavilions linked by continuous colonnades laid out at equal distance around three sides of an enormous square (10)... 257 yards across. Benjamin Latrobe to whom Jefferson sent his design for (11)... proposed placing pavilions at the corners and suggested that the central pavilion the dominant focal point of the whole layout which clearly influenced the eventual form of the Rotunda.

Edison's inventions include the phonograph, or gramophone, the megaphone, the cinematograph. They improved lamp of incandescent light, many greatly improve systems of telegraphic transmission and numerous other inventions.

ON BRIDGE BUILDING

Today bridge building is considered to be a science; but while it is of very recent origin, it must not be thought that the previous centuries made no contribution to our knowledge of bridge construction. Everyone knows that there are in existence bridges that are believed to have been constructed over two thousand years ago. Even the idea of bridge has been given to man by nature. A tree accidentally fallen across a stream served to provide a safe crossing. To drop another tree at its side and to use strong creepers to bind them together must have been man's first step in bridge building. Homer, who lived some time between 800 and 1000 B.C. writes that bridges were common in his day and mentions in particular pontoon bridges to be used for the passage of armies. Herodotes describes a bridge over the Euphrates which must have been built at Babylon about 780 B.C. It was a short span structure thirty feet wide, made of timber beams resting on stone piers to carry its load. Another and later form of bridge and one requiring a higher degree of skill was the arch. The Romans are known to have brought this construction to its high degree of perfection.

The history of Russian bridge building is closely connected with the name of Kulibin, one of the most talented self-taught engineers.

From his early childhood Kulibin showed a keen interest in all kinds of mechanical devices and liked to build models of mills, water mills, and different machine parts to be assembled into mechanisms. To acquire skill and knowledge became the boy's greatest desire. He realized that in order to master the secret of mechanisms it was necessary to study mathematics and physics.

But books were difficult to obtain in the provincial town where he lived and there was no one to instruct him in mechanics. The difficulties which had to be overcome seemed irresistible. But in spite of all that he succeeded in going to Petersburg where he was appointed mechanic to the Academy of Sciences and since then spent all his free time and all his money on new inventions.

In Petersburg Kulibin undertook a very difficult engineering problem – to design a bridge across the Neva as there was not a single permanent bridge in the city to provide a crossing at any season of the year. Temporary pontoon bridges were not safe enough to be crossed in stormy weather and had to be taken to pieces at high water, which greatly limited their usefulness.

To have the capital divided into two parts by a river 300 meters wide caused much inconvenience to the population. A permanent bridge ought to have been built long before, but there was no specialist to design it.

Kulibin was the first to think of spanning the river with an arched bridge. According to his plan the bridge was to have a single span to leave a free water way for ships and barges. It was a daring idea: arched bridges of similar construction had been built before but no engineer dared even to think of constructing a bridge with a three hundred metre span.

Kulibin set to work at his design with a deep determination to carry out his plan. Working at three models in succession he tried each time to improve his design, to verify every detail of his computation by careful experimenting so as not to admit the slightest error.

At last he succeeded in making a construction which is made use of even in our days.

After the model was completed it had to be submitted to a special commission set up by the Academy of Sciences. At the time of Catherine II the Academy was invaded by foreign sci-

Newton applied the principle of gravitation to prove that the power which guides the moon around the earth and the planets around the sun is the force of gravity.

Most highly ... by his countrymen (he was elected President of the Royal Society), Newton was very ...

Sir Isaac Newton died in 1727 and was buried in Westminster Abbey.

poetry, formulated, discovery, modest, experiments, danced, significant, born, devoted, published, science, honoured, pressure.

THOMAS JEFFERSON

Ex. Fill the gaps.

corner-stone, measuring, to be remembered, comment, every branch, in the capacity, dating from, as an architect, due to, of classes, on either side, as chairman, began work

Thomas Jefferson was perhaps a universal man in the full Renaissance sense, a man who wanted to explore (1) ... of knowledge. Of all his many achievements there were three by which he wished (2) ... , and which are engraved in his tombstone: "Author of the Declaration of American Independence and Father of the University of Virginia"

The University of Virginia provides the irrefutable proof of Jefferson's talents, indeed genius. (3)...: few buildings in America cast such immediate and unforgettable spell. Jefferson had begun thinking of founding a University during his presidency and had from the start conceived it in entirely different terms from existing universities (4) ... of the Atlantic — as an academic village.

In his enthusiasm Jefferson (5)... before the state legislature gave official backing. The project began as Albermarle College, subsequently chartered by the State Assembly as Central College. The (6)... of the first building was laid on October 7, 1817. The next year the Assembly voted \$15,000 to found a

collecting. On all stamps of the world you can see the name of the country where they are printed in the language of that country. But there is one country whose name is not seen on its postage stamps. This country is Great Britain, and British stamps are known everywhere without the country's name on them because the world's first real postage stamp was made by an Englishman.

What do we know about Rowland Hill? Not very much except the fact that he was a talented man. It is known that when he was twelve years old he was teaching mathematics in his father's school at Birmingham.

He is buried in Westminster Abbey.

ISAAC NEWTON

Ex. Fill the gaps.

"Nature to him was an open book, whose letters he could read without effort." (A.Einstein)

Isaac Newton was ... in the small village of Woolsthorpe in Lincolnshire (England) in 1643 in the family of a poor farmer. The boy was fond of ..., and science. He began his first scientific ... at school.

Newton studied at Cambridge University, while still a student he ..., the binomial theorem. Because of the plague, Cambridge was closed in 1665 and Newton returned to the country. For the next two years, cut off from the world, he ... himself to scientific experimentation.

Newton's great ... was the law of decomposition of light. The scientist proved that the white light of the sun is compounded of rays of light of all the colours of the rainbow. Among the things he discovered in those productive years was the Law of Universal Gravitation. Curiously enough, Newton ... nothing on these three highly ... discoveries; he began writing his "Mathematical Principles of Natural Philosophy" much later under ... of his friends.

entists and specialists who thought themselves to be much superior to Russian people whose intellect and talent they utterly ignored.

No Russian was expected to possess higher skill and knowledge than a representative of West European culture. Only one of the academicians – the great mathematician Euler – acknowledged Kulibin's genius: he carefully studied all his drafts and computations and found them to be quite correct.

All the rest of the academicians were sure that the model to be tested would prove a failure.

In spite of general disbelief the testing of the model proved to be a success. No failure resulted even when a weight much greater than the maximum load designed for was applied to the bridge. In spite of the favorable conclusion no practical result followed. Catherine II ordered the model to be set up in the grounds of the Taurida Palace. For public inspection where it gradually fell into decay.

To make clear the significance of Kulibin's design it should be noted that a year later, in 1772, the London Academy started a competition for a design of an arched bridge, whereas Kulibin had completed his design much earlier, the first variety of his model being ready in 1771.

To see his work so utterly neglected caused Kulibin much bitter feeling. He might have won the competition but it never occurred to him to send his project to London. Having a family of 12 children, being in great want he remained a true son of his country, who found it unnatural to have the work of his life realized in foreign lands.

ARCHIMEDES

Archimedes was the greatest mathematician of antiquity. He was born in the Greek city of Syracuse on the island of Sicily about 287 B. C. Archimedes died in 212 B. C. Roman historians have related many stories about Archimedes.

There is a story which says that once when Archimedes was taking a bath, he discovered a phenomenon which later became known in the theory of hydrostatics as Archimedes' principle. He was asked to determine the composition of the golden crown of the King of Syracuse, who thought that the goldsmith had mixed base metal with the gold. The story goes that when the idea how to solve this problem came to his mind, he became so excited that he ran along the streets shouting Eureka, eureka (I have found it). Comparing the weight of pure gold with that of the crown when it was immersed in water and when not immersed, he solved the problem.

When Syracuse was taken by the Romans, a soldier commanded Archimedes to go to the Roman general, who admired his genius. At that moment Archimedes was absorbed in the solution of a problem. He refused to fulfill the command and was killed by the soldier.

Archimedes made many discoveries. He added new theorems to the geometry of the sphere and the cylinder and stated the principle of the lever. He also discovered the law of buoyancy.

Words:

Archimedes [ˌɑːkiˈmiːdiz] – Архимед

Syracuse [ˈsaɪərəkjua] – Сиракузы

phenomenon – явление

to determine the composition – определить состав

to mix – смешивать

base metal – неблагородный металл

the weight of pure gold – вес чистого золота

to immerse – погружать, окунать

sphere – шар

lever – рычаг

buoyancy – плавучесть

that today the whole world is closely linked by a vast network of radio communication.

Broadcasting is the technique of use of electro-magnetic waves for wireless transmitting of sounds. These waves which are commonly referred to as radio waves travel with the velocity of light. These waves are produced at the broadcasting station and via the aerial reach our receiving sets.

Radio is not only a fast means of communication but also an effective means of educating people. In little more than half a lifetime the invention of Popov has developed into an essential part of civilised life.

Television

The idea of television was not new in 1922 any more than the idea of an airplane had been new in 1890 when the Wright brothers first became interested in flying. The work was done by Boris Rosing in Russia in the early 1900's. Rosing was the first to attempt a television system that used a cathode ray tube in which the electron beam struck a fluorescent screen and made a picture from a moving pinpoint of light.

Then triode was developed as a means to amplify feeble currents and now any television system works on this general principle of amplifying feeble currents.

In our time the word television has come to mean not only some device that enables us to see at a distance but a whole new art.

THE FIRST STAMP IN THE WORLD

The first postage stamp was introduced in 1840 by an Englishman called Rowland Hill.

Some time later other countries of the world decided to have stamps too. Letters with different stamps on them began travelling all over the world. Then people saw how beautiful and interesting they were and started to take them off their letters. Perhaps that was the beginning of stamp

was almost totally ignorant of the most basic principles of electricity. But he worked hard and in September 1837 he put on a demonstration at New-York University in which he sent a message over 1,700 feet of wire.

When Morse visited Russia he learned that Baron Schilling, the Russian Minister to Austria, had invented an electromagnetic telegraph as far back as 1825, but that the present tsar considered the possibility of instantaneous communication between people at distant ends of Russia so subversive, that he had banned any mention of such a thing in the press

Telephone

Alexander Bell was not satisfied with Morse's device which sent messages by means of opening and closing the circuit using a manually operated key. Bell wanted to transmit human speech and in 1876 he demonstrated his device which he called a telephone. The basic principle of the Bell telephone was the conversion of continuously varying sound waves into continuously varying electric currents. The receiver reconverted the electrical variations into sound.

Few revolutionary inventions have been adopted by the public as rapidly as the telephone.

The difference between the telephone and every telegraphic device is as follows: telegraphy transmits sharply defined pulses of current, each pulse having the same intensity even though the current pulse for a dash is longer than that for a dot. A telephone requires a continuous current where intensity can vary exactly as the sound waves in the air.

Radio

The wireless receiving set or radio is one of the greatest achievements of human genius. Priority in the invention of radio belongs to the Russian scientist Alexander Popov.

The seventh of May is celebrated in Russia as Radio Day because on that day in 1895 A. Popov demonstrated the first radio receiving set in the world. Since then radio has spread so

THE DEVELOPMENT OF ALGEBRA

This article describes in brief the development of algebra. We should remember that the beginning of algebraic thinking dates back to the days of ancient Babylonia and Egypt.

Algebra developed slowly in comparison with arithmetic and geometry. What is now known as elementary algebra is largely the work of mathematicians of the 16th and 17th centuries. Our present knowledge of Babylonian mathematics is possible thanks to the translation of mathematical records found on ancient tablets. These tablets are now preserved in the world's leading museums. The information obtained in this way proves that as early as 2000 B. C. the Babylonians had advanced very far in their study of mathematics. Using algebraic methods they were able to solve many problems.

Something must also be said about the mathematical knowledge of the early Egyptians. There are manuscripts, written on papyrus and dating from about 1850 B. C, which give us a clear picture of what they knew. Some of the problems they dealt with are of the kind we should now solve by using equations.

Our present symbols of operations are of comparatively modern origin. For example, the sign of equality (=) was invented by the English scholar Robert Recorde and appeared in 1557. The origin of the use of letters in algebra to represent known or unknown quantities is also of great interest. Among the mathematicians who invented algebraic notation, we must mention the names of Vieta, Harriot, Descartes, Newton and Leibniz.

The term "algebra" was taken from the long title of one of the works of an Arabian mathematician who lived in Bagdad in the 9th century. The long title was shortened to "al-jabr" and began gradually to take the form "algebra". At one time there was much debate among scientists concerning the exact meaning of this title, but it may now be regarded as settled that the

word "al-jabr" really means the "science of equations".

Words:

record – запись

tablet – дощечка (с надписью)

to obtain – получать

to advance – развиваться, делать успехи

to invent – изобретать

to represent – изображать, представлять

notation – запись, записывание

COPERNICUS AND GALILIO

Before Copernicus was born in 1473, most educated people had believed that the earth was the center of the universe and that all the heavenly bodies revolved about the earth. His mathematical and astronomical studies convinced Copernicus, however, that the apparent motions of the sun and the stars could best be explained in another way. In reality, he stated, the earth rotated on its axis at the same time that it revolved around the sun. He thought that the stars were extremely distant and occupied fixed positions in space.

It took a great deal of courage for Copernicus to oppose the authorities of his day. However, in the year of his death, 1543, his book "Concerning the Revolutions of the Celestial Spheres" was published. It explained his ideas and eventually convinced most other scholars.

Using a homemade telescope Galileo (1564-1642) carefully observed the heavens. His observations and mathematical computations soon convinced him that Copernicus was right saying that the earth rotates about the sun.

Galileo also claimed that both light and heavy objects tend to fall to earth at the same rates of speed. To prove his claim Galileo climbed to the top of the skyscraper of his day, the Leaning Tower of Pisa, with two cannon balls of greatly different weight. Before witnesses he dropped both iron balls

simultaneously from the top of the tower. They struck the earth together, proving his claim.

Answer the questions

1. What had the educated people thought about the Universe before Copernicus was born?

2. What did Copernicus think about the position of the stars in space? Was he right or wrong?

3. What book by Copernicus was published after his death? What was the meaning of this book?

4. How did Galileo prove that the earth rotates about the sun?

5. Would you like to make a discovery yourself? In what sphere of knowledge? Discuss your future discovery with your friend.

Telegraph

Men have always found the means to communicate with others at a distance.

Bonfires flickered on hill after hill in the darkness of pre-history to signal distant tribes that an enemy was on the way. But the nineteenth century came and a man Samuel Finley Breese Morse by name gave the world a real means of communication.

In 1811 Morse went to England to study art. As a painter, he showed great promise. He travelled much. In 1832 he was going back to America. He boarded the ship as a painter and disembarked as an inventor.

Aboard the ship, Morse got into a conversation about European experiments on electro-magnetism. The work of Faraday had been published only a few months earlier and had at once been repeated in most European laboratories. "Drawing sparks from a magnet" was one of the scientific marvels of the moment. Morse immediately suggested that a combination of sparks could be used as a code to send messages over a wire. The idea took fire within him (эта мысль жгла его) though he