Серия «Высшее профессиональное образование»

**О.Н. Мусихина, О.Г. Гисина, В.Л. Яськова**

# АНГЛИЙСКИЙ ЯЗЫК ДЛЯ СТРОИТЕЛЕЙ

*ПРАКТИКУМ*

*Учебное пособие для студентов*
*высших учебных заведений*
*подготовлено в соответствии*
*с Государственным образовательным стандартом*
*высшего профессионального образования*
*Российской Федерации и программой учебного курса*

Ростов-на-Дону
Феникс
2004

ББК 81.2
М91

Рецензенты:
завкафедрой КубГТУ, доктор филологических наук, профессор, действительный член Нью-Йорской Академии Наук С.Г.Воркачев; кандидат филологических наук, доцент кафедры Научно-технического перевода КубГТУ Е.А.Жук, кандидат филологических наук, профессор кафедры Иностранных языков Новороссийского политехнического института Е.В.Кинчина

Мусихина О.Н., Гисина О.Г., Яськова В.Л.
М 91 Английский язык для строителей. Практикум / Серия «Высшее профессиональное образование».—Ростов н/Д: Феникс, 2004. — 352 с.

Учебное пособие предназначено для студентов строительных специальностей технических вузов и всех желающих овладеть лексикой по следующим разделам: строительство, менеджмент и маркетинг в строительстве, устойчивое развитие региона и т.д.

Учебное пособие включает также тексты научно-популярного характера и нацелено на развитие у студентов навыков чтения, понимания текстов и говорения на английском языке, как на темы строительства, так и в других областях человеческого общения.

ББК 81.2

ISBN 5-222-04873-X



# ПРЕДИСЛОВИЕ

Данное учебное пособие предназначено для студентов строительных специальностей технических ВУЗов и составлено в соответствии с требованиями учебной программы для технических вузов.

Основной целью учебного пособия является подготовка студентов к чтению, пониманию аутентичных текстов по специальности. В основе пособия лежат как методически обработанные тексты из англоязычных источников, так и тексты, являющиеся творческой работой авторов. Тематика текстов охватывает основные строительные понятия, историю предмета и развития строительного дела, современные строительные технологии, а также проблемы маркетинга и менеджмента в строительстве. Отдельные тексты содержат информацию страноведческой и культурологической направленности и носят обучающий и познавательный характер. Некоторые уроки снабжены высказываниями людей, имеющих огромный практический опыт в бизнесе, что также способствует, на взгляд авторов, формированию делового и финансового менталитета обучаемых *{Financial Intelligence Quotient),* и является немаловажным для развития российской молодежи в современных рыночных условиях. Высказывания отдельных известных людей, служат основой для развития умения говорить на заданную тему и способствуют закреплению лексики урока и использованию ее в других жизненных ситуациях.

Учебное пособие состоит из двух основных частей: практической и теоретической, дополнительных текстов с заданиями, англо-русского и русско-английского словаря.

Каждый урок пособия имеет определенную структуру: лексическая часть включает основной текст, словарь и комментарий для активного усвоения лексики текста, лексические и послетекстовые упражнения различного типа. Кроме того, урок содержит комплекс грамматических упражнений, направленных на введение и закрепление нового и повторение пройденного грамматического материала. К каждому уроку дается один или два дополнительных текста, тематически связанных с основным. Это дает возможность расширить лексический запас и кругозор студентов по каждой теме. Дополнительные тексты могут слу-

жить как для аудиторной работы, так и для самостоятельного чтения.

При составлении текстов и упражнений в учебном пособии уделено большое внимание повторяемости лексических и грамматических явлений и использован принцип постепенного нарастания трудностей, что позволяет лучше усваивать материал.

Учебное пособие также включает задания, ориентированные на формирование навыков монологической речи. Выбор тематики продиктован требованиями вузовской программы.

В "Фонетическом приложении" даются краткие правила чтения наиболее трудных для произношения букв и буквосочетаний английского языка в виде таблиц.

В "Грамматическом приложении" более полно раскрыты те разделы английской грамматики, которые не изучаются в рамках школьной программы, тогда как грамматическим явлениям, изучаемым в школе, уделено меньше внимания.

Англо-русский и русско-английский словари содержат терминологию по строительной специальности, а также лексику, встречающуюся в текстах учебного пособия.

Каждое аудиторное занятие рассчитано на 2 часа, примерно столько же требуется на подготовку к нему дома и около одного часа на выполнение письменной работы. На прохождение каждого урока требуется 8-14 аудиторных часов (которые распределяются поровну на каждую часть). Всего основная часть учебного пособия рассчитана на 200 аудиторных часов. Остающееся в учебном плане время для работы по практике языка отводится на работу с текстами для домашнего чтения *(2-А* часа в месяц), по газетному материалу и на другие виды работ, выходящие за пределы данного учебника.

Авторы выражают глубокую признательность Е. Гаджиевой, А. Назаровой, А. Никифоровой за их помощь в напечатании материалов пособия.

Особая благодарность нашим рецензентам: завкафедрой КубГТУ, доктору филологических наук, профессору, действительному члену Нью-Йорской Академии Наук С.Г. Воркачеву; кандидату филологических наук, доценту кафедры Научно-технического перевода КубГТУ Е.А. Жук и кандидату филологических наук, профессору кафедры Иностранных языков Новороссийского политехнического института Е.В. Кинчиной.

# Lesson 1.
# CIVIL ENGINEERING

## /. *Read and translate the text*

### Civil Engineering

The term *"engineering"* is a modern one. The New Marriam-Webster Dictionary gives the explanation of the word *"engineering"* as the practical application of scientific and mathematical principles. Nowadays the term "engineering" means, as a rule, the art of designing, constructing, or using engines. But this word is now applied *in a more extended sense.[1] It is applied also to the art of executing such works as the objects of civil and military architecture, in which engines or other mechanical appliances are used. Engineering is divided into many branches. The most important of them are: civil, mechanical, electrical, nuclear, mining, military, marine, and sanitary engineering.

While the definition *"civil engineering "* dates back only two centuries, the profession of civil engineer is as old as civilized life. It started developing with the rise of ancient Rome. In order to understand clearly what civil engineering constitutes nowadays, let us consider briefly the development of different branches of engineering. Some form of building and utilization of the materials and forces of nature have always been necessary for the people from the prehistoric times. The people had to protect themselves against the elements and sustain themselves in the conflict with nature.

First the word "civil engineering" was used to distinguish the work of the engineer with a non-military purpose from that of a military engineer. And up to about the middle of the 18th century there were two main branches of engineering — civil and military. The former included all those branches of the constructive.art not directly connected with military operations and the constructions of fortifications, while the latter[2], military engineering, concerned itself

with the applications of science and the utilization of building materials in the art of war.

But as time went on, the art of civil engineering was enriched with new achievements of science. With the beginning of the Industrial Revolution and later ther,e came a remarkable series of mechanical inventions, great discoveries in electrical science and atomic energy. It led to differentiation of mechanical, electrical, nuclear engineering, etc.

It is a well-known fact that with the invention of the steam engine and the growth of factories a number of civil engineers became interested in the practical application of the science of mechanics and thermodynamics to the design of machines. They separated themselves from civil engineering, and were called "mechanical engineers".

With the development of the science of electricity, there appeared another branch of the engineering — electrical engineering. It is devided now into two main branches: communications engineering and power engineering.

In the middle of the 20[1h] century there appeared some other new branches of engineering — nuclear engineering and space engineering. The former is based on atomic physics, the latter — on the achievements of modern science and engineering.

At present there are hundreds of subdivisions of engineering, but they all, at one time or another, branched off from civil engineering.

The term "civil engineering" has two distinct meanings. In the widest and oldest sense it includes all non-military branches of engineering as it did two centuries ago. But in its narrower, and at the present day more correct sense, civil engineering includes mechanical engineering, electrical engineering, metallurgical, and mining engineering.

*Here are some fields of civil engineering[3]:

**1.** *Housing, industrial, and agricultural construction.*

*2. Structural engineering* comprises the construction of all fixed structures with their foundations.

3. *The construction of highways and city streets and pavements.*

*4. The construction of railroads.*

*5. The construction of harbours and canals.*





6. *Hydraulic engineering which* includes the construction of dams and power plants.

The above enumeration will make clear the vast extent of the field of civil engineering.

### *2. A few explanations to the text*

1... .in a more extended sense—в более широком смысле

2. The former..., while the latter... — первый (имеется в виду из двух упомянутых)..., тогда как последний... (из двух упомянутых)

3. Here are some fields of civil engineering. — Вот некоторые области строительства.

## *3. Key vocabulary / expressions*

appliance [a'plaians] —*n* приспособление, прибор

apply[9'plai] —v обращаться *(for —за помощью, справкой и т.д. to — ккому-л)*

branch [bra:ntj] —*n* ветвь; филиал; отрасль

concern [k9n's3:n] (with)—v" касаться, относиться; интересовать

conflict with nature ['neitja] — противоречить природе, бороться с природой

deal (with) —v иметь дело с чём-л., кем-л.

divide (into) — v делить, разделять

distinguish (from)—v отличать

execute [ig'zekju:t] — v выполнять

harbour ['ha:ba] — *n* гавань

lead (to)—v вести *(к)*

protect oneself against — защищаться от чего-л.

sustain [sas'tein]—v поддерживать; выдерживать

## *4. Phonetic drill. Mind the pronunciation of the following words with* the italicized letters

[u:] include, fluent, blue, revolution; rule, crude, virulent, ruble / *but* construct [kan'strAkt], structure ['strAktJb]

[u:] should, would, could, group, route, soup, rouble

[o:] hydraulic, authority, automobile, Australia, August, launch/ *but* gauge [geid3], laugh [la:f], aunt[a:nt], mauve[mouv]

**5.** ***Word construction (Different ways to construct words) Translate the words keeping in mind their suffixes and prefixes.***

military — non-military — militarisation; enumerate — enumeration;
decide — decision—decision-maker; invent — inventor—invention;
apply — appliance — application; explain — explanatory — explanation;
build — builder — building —rebuilt; achieve — achievement;
construct — constructor—construction — constructive—reconstruct

## *6. Learn to recognize international words. Give Russian equivalents to the following words without a dictionary*

| | |
|---|---|
| start [sta:t] | mechanics [mi'kaeniks] |
| mechanism ['mekgnizm] | economics [i:k9'nomiks] |
| principle [prinsipl] | mathematics [maeGi'mastiks] |
| architecture [aiki'tektfa] | thermodynamics [09:madai'naemiks] |
| energy ['ena:d3i] | communication [kamjumi'keiJn] |
| material [ma' tiarial] | utilization [ju:tili'zeijn] |
| form [fo:m] | fortification [foitifi' kerjn] |
| construction [kanst'rAkJn] | application [spli'keiJn] |
| element ['elimsnfj | general ['djensral] |

## *7. General understanding. Answer the questions*

1. What does the word "engineering" mean?
2. Is engineering a science?
3. Into what branches is Civil engineering divided?
4. How old is the profession of a civil engineer?
5. What distinct meanings has the term "civil engineering"?
6. What fields of Civil engineering do you know?





7. What are the most important branches of Civil engineering?
8. What invention laid the foundation for mechanical engineers?
9. When was electrical engineering developed?
10. What are the main subdivisions of the electrical engineering?

## *8. Speaking Practice. Tell the group about yourself using the following words*

to introduce, to finish the school, to enter the university, a freshman, time table, to be going to do smth., to graduate from, hobby, to socialize, free time, to go to the discotheque, to go in for, to listen to the music/radio, to read a lot, etc.

**Let's Revise the Grammar**
**(see Grammar Appendix p.p. 200-201; 216-219)**

## *9. Make the plural form of the following words. Can you see where the trick is?*

branch, tooth, service, century, key, hero, ox, opportunity, engineer, ship, man, earning, county, roof, sheep, business, town, structure, deer, woman, leaf, tornado, mouse, still life, engine, warning, salary, profession, force, meaning, discovery.

## *10. Use the verbs in brackets in the required INDEFINITE TENSE*

1. Our group (to go) to the discotheque tonight.
2. We (to get) books from the library next week.
3. We (not to go) to the park in the evening.
4. He (to show) us his report yesterday.
5. My friend (to speak) good English.
6. He (not to pronounce) the given word correctly.
7. This student (to translate) many English texts a year ago.
8. They (to know) this theoretical material pretty well.

9. Will you (to travel) to the Crimea or to the Caucasus?
10. It (to be) possible or impossible for you to get to the university in 5 minutes?
11. They (not to know) the words properly.
12. Our family (not to travel) to the Crimea last year.

### *11. Translate from English into Russian*

1. The ancient Greeks put a high premium on building skills.
2. The Babylonians of 1800 B.C. hammered out their messages on stone tablets.
3. He will graduate from the university in five years.
4. Construction business also has lots of competition.
5.1 hope she will be back from her trip to Europe next week.
6. The Brooklyn Bridge was remarkable not only for the first use of the pneumatic caisson but also the introduction of steel wire.
7. Architecterally, Venice is very beautiful.
8. I'll take care of this matter personally.
9. Are you going to work as a civil engineer in five years?
10. Many centuries ago man learned to shape clay into blocks.
11. The Twelve Apostles are high rocks in the sea area of Australia.
12. A lot of various modern materials are widely used in civil engineering now.

### *12. Translate from Russian into English*

1. Студенты вашей группы посещают все лекции?
2. Я знаю много английских слов.
3. Мы пойдем на дискотеку вечером?
4. Аня много помогает мне с переводом английских текстов.
5. Вы купили этот учебник вчера или позавчера?
5. Лекция продлится два академических часа.
6. Студенты обычно повторяют новые слова перед уроком.
7. Мой друг поступил в политехнический институт в прошлом году.
8. Два года назад мы и не слышали об этом.





9. Никогда не видела, чтобы он что-нибудь читал.
10. Я буду очень рада, если вы придете.
11. Занятия в университете всегда начинаются ровно в 8.30 утра.

### *13. Use the verbs in brackets in the required CONTINUOUS TENSE*

1. The people (to arrive) to the conference from different countries.
2. What (to do) when I came in?
3. She (to come) to Moscow to see her friends.
4.1 (to work) at my manual now.
5. It (not to rain) when we went out for a walk.
6. What he (to do) at 10 p.m. last night?
7. In 1983 they (to live) in Siberia.
8. Today she (to pass an exam) in English, and the day after tomorrow she (to pass an exam) in History.
9.1 came in when they (to play) tennis on the tennis court.
10. What you (to do) at 11 a.m. tomorrow?

### *14. Translate from English into Russian paying attention to the italicized verbs used for expressing future actions*

1. He *is going* to enter the postgraduate course next year.
2. She *is leaving* for the USA in a week.
3.- They *are coming* to the city tomorrow.
4. Nick *is starting* his new business this year.
5. It is the book I am looking for everywhere.

### *15. Translate from Russian into English*

1. Чем вы занимались, когда мы пришли?
2. Шел сильный дождь, и мы не пошли на прогулку.
3. В 1990 году он работал на стройке.
4. В девять часов она не смотрела телевизор.
5. Я вчера встала рано утром. Был чудесный день. Ярко светило солнце и звонко пели птицы.

6. Вы смотрели вчера вечером концерт?
7. Когда вы собираетесь продолжить свои исследования?
8. Они уезжают завтра в Москву.
9. Она начинает писать новую курсовую работу через неделю.
10. Я приду к вам сегодня вечером.

## CUMULATIVE REVIEW EXERCISES
**(Grammar appendix p.p. 200-212)**

**Directions:** Some of the sentences in this exercise are correct. Some are incorrect. First, find the correct sentences and mark them with a check (v). Then find the incorrect sentences, and correct them.

**Nouns.** Revise all the material concerning nouns.

1. The life comes from and depends on the nature.
2. The students at the university are also assigned homeworks.
3. Dam is a wall constructed across a valley to enclose an area in which water is stored.
4. The light travels in a straight line.
5. I prefer having my coffee with the milk.
6. The peace in the world is the goal of all nations.
7. They were accustomed to speak the English at home at that time.
8. The happiness is an abstract notion.
9. Staring at a computer screen for long periods of times can cause severe eyestrain.
10. The water boils at 212 degrees Fahrenheit and freezes at 32 degrees Fahrenheit.
11. The mathematics were her favourite subject at school.
12. She is the good economist.
13. She is such the clever girl.
14. A director wants to see you.
15. The Washington is the capital of the USA.





**Pronouns.** Revise all the material concerning pronouns.

1. His dances well to who fortune pipes.
2. The bus leaves their at the corner.
3. Didn't you know that it was us who played the joke?
4. They completely rely on you helping.
5. I never saw she in such a terrible state.
6. If his has any possibility to help you, he will do it.
7. After Betty graduated from Business school, her opened a bookstore.
8. We know that Leif Erickson and his Norwegian companions were the first white men to land on the North American coast in 1000 A.D.
9. It was she, Elizabeth I, not her father, King Henry, whose led England into the age of Empire.

## *TIME FOR FUN*

### *1. Read the text*

### What is home?
*(after Ernestine Schumann-Heink)*

A roof to keep out the rain? Four walls to keep out the wind? Floors to keep out the cold?

Yes, but home is more than that. It's the laugh of a baby, the song of a mother, the strength of a father. Warmth of living hearts, light from happy eyes, kindness, loyalty, comradeship.

Home is first school and first church for young ones, where they learn what is right, what is good and what is kind. Where they go for comfort when they are hurt or sick.

Where joy is shared and sorrow eased. Where fathers and mothers are respected and loved. Where children are wanted. Where the simplest food is good enough for kings because it is earned. Where money is not so important as loving kindness. Where even the teakettle sings from happiness.

That is home. Sweet home.

God bless it.

*2. Tell the group what is a home for YOU?*

*PRO VERBS AND SA YINGS TO THE TOPIC*

***3. Read, translate and memorise the following:***

East or West—home is best.
There is no other place like home.

***4. Read and try to retell the anecdotes changing Direct Speech into Indirect,*** (see Grammar Appendix p.p. 226-229)

I.

Once a schoolgirl was at a dinner party. She was next to a very famous astronomer at the table and she decided to talk to him.

"What do you do in life?" she asked.

"I study astronomy", he answered.

"Dear me!" exclaimed the young lady, "I finished astronomy last year".

**II..**

A rich American banker asked a well-known painter to do a little thing for his album. The painter did it and asked a hundred dollars.

"Why", cried the banker, "it took you only five minutes to do it".

"Yes", answered the painter, "but it took me thirty years to learn how to do it in five minutes".

# Lesson 2.
# FROM THE HISTORY OF BUILDING

*/. Read and translate the text*

## From the History of Building

Many thousands of years ago there were no houses such as people live in today. In hot countries people sometimes made their homes in the trees and used leaves to protect themselves from rain or sun. In colder countries they dwelt in caves. Later people left their caves and trees and began to build houses out of different materials such as mud, wood or stones.

Later people found otit that bricks made of mud and dried in the hot sunshine became almost as hard as stones. In ancient Egypt especially, people learned to use these sun-dried mud bricks. Some of their buildings are still standing after several thousands of years.

The aacient Egyptians discovered how to cut stone for building purposes. They erected temples, palaces and huge tombs. The greatest tomb is the stone *pyramid of Khufu[1], king of Egypt. The ancient Egyptians often erected their huge constructions to conmemorate their kings or pharaohs.

The ancient Greeks also understood the art of building with cut stone, and their buildings were beautiful as well as useful. They often used pillars, partly for supporting the roofs and partly for decoration. Parts of these ancient buildings can still be seen today in Greece.

Whereas the ancient Greeks tried to embody the idea of harmony and pure beauty in their buildings, the Roman architecture produces the impression of greatness, might, and practicalness.

The Romans were great bridge, harbour and road builders. In road works the Romans widely used timber piles. They also erected aqueducts, reservoirs, water tanks, etc. Some of their constructions

^reused till now. It is known that the manufacture of lime is one of t boldest industries used by man. Lime is a basic building material vJSed all over the world as today so in the ancient world. One of the J^cmans, Marcus Porcius Cato, gave an idea of a kiln for lime, production: it's shape and dimensions. They are rough cylindrical or r ectangular structures, built of stone in a hillside with an arched caning at the front to enable the fire to be made and the lime to be v^ithdrawn. Such kilns were fired with wood or coal and were extremely inefficient. There are still many remains of kilns in some •*p*laces of Great Britain as well as roads and the famous Hadrian \^all, which was erected to protect the Romans from the celtic tribes irlthe first century A.D. Britain was a province of the Roman Empire f£>raboat four centuries. There are many things today in Britain to remind the people of the Romans: towns, roads, wells and the words.

By the way, Hadrian, the Roman emperor, was also the one who suggested the absolutely new for that time idea of building the Pantheon with a dome. He constructed it, and alongside with a number of other outstanding buildings such as the Colosseum and the Baths of Caracalla, it is still there in Rome. Many ancient buildings in K-Ome were designed by Hadrian as well as by other Roman emperoA In a period of 800 to 900 years the Romans developed concrete *to* the position of the main structural material in the empire.

It is surprising, therefore, that after the fall of the Empire, much of tfre great knowledge should have disappeared so completely. The knowledge of how to make durable concrete has been lost for centuries, *but rr»ention was made of it in the writings of architects from time to time[2].

Fusion of Roman and North European traditions in construction was reflected in many ways. Buildings combined the Roman arch and th[e] steep peaked roof of Nothern Europe. Roman traditions were continued in the architectural form known as Romanesque. London Bridge, finished in 1209, took thirty-three years to build. It consisted of nineteen irregular pointed arches with its piers resting on broad foundation, which was designed *to withstand the Thames current[3].

The Romanian period was followed by other periods each of which produced its own type of architecture and building materials. D[u]ring the last hundred years many new methods of building have been discovered. One of the most recent discoveries is the usefulness of steel as a building material.





Nowadays when it is necessary to have a very tall building, the frame of it is first built in steel and then the building is completed in concrete. Concrete is an artificial kind of stone, much cheaper than brick or natural stone and much stronger than they areiThe earliest findings of concrete building fragments belonging to prehistoric times were discovered in Mexico and Peru. The Egyptians in the construction of bridges, roads and town walls employed it. There are evidences that ancient Greeks also used concrete in the building purposes. The use of concrete by the ancient Romans can be traced back as far as 500 B.C. *They were the first to use[4] it throughout the ancient Roman Empire *on a pretty large scale[5] and many constructions made of concrete remain till nowadays thus proving the long life of buildings made of concrete. Of course, it was not the concrete people use today. It consisted of mud, clay and pure lime, which were used to hold together the roughly broken stone in foundations and walls. It was the so-called "pseudo concrete". The idea of such building material might have been borrowed from the ancient Greeks as some samples of it were found in the ruins of Pompeii.

### *2. A few explanations to the text*

1... .pyramid of Khufu ['ku'fu:] — пирамида Хуфу
2. ...to withstand the Thames current. — ...чтобы противостоять течению Темзы.
3. .. .but mention was made of it in the writings of architects from time to time — но время от времени можно встретить упоминание об этом в работах архитекторов.
4. They were the first to use... — они первыми использовали
5. . . . .on a pretty large scale— в довольно широких масштабах

## 5. *Key vocabulary /expressions*

art of building — искусство строить
brick [brik] — *n* кирпич
borrow ['borou] — v (from) занимать, заимствовать
concrete ['konkrit] —*n* бетон,
dome [doum]—*n* купол

dwell [dwel] — v жить, проживать
embody [im'bodi] — v олицетворять, воплощать
erect fi'rekt] —v возводить, строить
find jfaind] — v (out) обнаружить, найти
kiln [kiln]— n обжиговая печь, сушильная печь
pile [pail] — *n* свая, столб
pillar fpils] — *n* столб, колонна
remains [ri' meinz] — л pi остатки, руины
tribe [traib]—*n* племя

### *4. Phonetic drill*

4.1. *Read the words paying attention to defferent pronunciation of letter combination* ea

[e] weather, measure, health, ahead, leather, instead
[ei] great, break, steak, streak
[i:] team, means, beam, cheap, easy, weak, leave
[i э] theatre, realize, appearence, weary, dreary
[i'ei] permeate, create, delineate

4. 2. *Mind the pronunciation of the following words with* the italicized *silent letters*

tomb[tu:m], bomb[boum], lambpasm], limbflim], p1итЬ[p1лт] listenflisn], christen['kraisn], fasten[fa:sn], often[o:fn], soften['sofn]

thistle[0isl], mistletoe ['misltou], castle[ka:sl], apostlefa'posl] gnome[noum], gnujnu:], gnarled[na:ld], gnashfnaej], gnawerfno: з]

4. 3. *Explain the pronounciation of letter combination* wh *in each line*

which, why, whelm, whammy
who, whole, whom, whose

### *5. Translate the extract into Russian*

The term *"civil engineering"* is usually applied to such activities as the excavation and then the construction of different buildings, bridges, roads, docks, harbours and embankments as well as to the water control by dams and reservoirs, canals and aqueducts, pipelines and the reclamation of land.
By the way: What does the international word "reclamation" mean here? Explain it in the most detailed way in Russian.





### *6. Learn to recognize international words. Give Russian equivalents to the following words without a dictionary*

| | |
|---|---|
| harmony [Ъатаэш] | reservoirf rezavwa:] |
| tradition [tra'dijn] | manufacture [manju'fsektjs] |
| decoration [deka reijn] | fragment ['fraegmant] |
| aqueduct ['aekwidAk] | method [ʳme03d] |
| idea[ai 'dis] | period['pi3ri3d] |
| tank [tasrjk] | strusture ['strAktJa] |
| position [ps'zijn] | arch ['a:tj] |

### *7. Find the corresponding Russian meaning of the international words given above in ex.5. Start compiling your own vocabulary of international words.*

*ex.* business ['biznis]
1) бизнес, торговля, коммерческая деятельность
2) коммерческое, торговое предприятие, фирма
3) (выгодная) сделка
4) дело, занятие, профессия

### *8. Explain in English the meaning of the following words:*

sun-dried mud bricks_____
timber piles_____
pseudo concrete_____
the ruins of Pompeii_____
harmony and pure beauty_____

***9. Find in the text equivalent English phrases to the following Russian***

доисторические времена_____.
римский период_____
бесполезность использования стали_____
в качестве строительного материала_____
грубо обтесанный камень_____
они первыми использовали_____
недавние открытия_____
в довольно широких масштабах_____

## *10. Home reading. For further reading on the given topic we recommend Supplementary texts*

1. How the Ancient Builders Put a Hand to the Development of Different Languages, p. 131.
2. Ancient Wonders of the World, p.p. 132-133.

**Let's Revise the Grammar**
**(see Grammar Appendix p.p. 207-208; 186-187)**

## *11. Give the degrees of comparison of the following adjectives and adverbs*

narrow, high, large, big, thoroughly, little, natural, cheap, small, many, generally, good, bad, far, easy, interesting, correct, clear, healthy, responsible, necessary, competitive, old, beautifully, serious, much.

## *12. Comparison.*

***12.1.*** *Read and translate the sentences*

1. The more you study during the semester, the less you have to study before exams.





2. The faster we finish our test, the sooner we can leave the classroom.
3. The louder you shout, the less you convince anyone.
4. The most you practice speaking, the better you will do it.
5. The less you speak, the more you hear.
6. Lime is a basic building material used all over the world as today so in the ancient world.
7. The buildings were beautiful as well as useful.
8. The people began to build houses of different materials such as mud, wood, or stone.
9. After that procedure bricks became almost as hard as stones.
10. Concrete is much stronger than brick or natural stone.

*12.2. Correct the following sentences*

1. The pretty the girl is, more attention she attracts.
2. The harder the problem, the most time one needs to settle it.
3. Sooner come, the sooner served.
4. The more you read, the most you know.
5. The most one eats, the fatter he is.

*12.3. Find and correct mistakes if any*

1. New York is one of the large cities in the world.
2. Her qualifications are best than those of other candidates.
3. I wish we could see each other most frequently.
4. London is more biggest than Bonn.
5. I am the younger player in our team.
6. She is most tall student in the group.
7. Tennis is not as popular as football.
8. January is colder month in the year.
9. London is one of the more interesting cities I have ever seen.
10. He is the baddest student of the faculty.
11. It takes him most than ten minutes to get to the university.
12. Canberra is more than seventy years old.

***13. Put the questions to the underlined parts, of the*** *sentences.*

1. This student translates well, (who? how?)
2. His mother worked at a factory, (whose? where?)
3. She went to London yesterday, (where? when?)
4. He is the best student of our group because he works hard, (why?)
5. They will buy these books tomorrow, (what? when?)
6. I like to read newspapers, (what?)
7. We saw this film a week ago, (what? when?)
8. The teacher gave her two interestingmagazines. (whom? how many? what?)

## *14. Answer the following ALTERNATIVE QUESTIONS.*

1. Do you want to travel by bus or by train?
2. Is it possible or impossible to bathe in the sea in winter?
3. Does the widget work well or badly?
4. Does she play tennis or volley-ball?
5. Will he go to see his friend or ring him up?
6. Shall we dance or sing songs?
7. Did he translate this or that article?
8. Did she go to the river or to the forest?

## 75. *Tag questions*

*15.1. Read and translate* ***the*** *questions*

1. We have not to hurry, have we?
2. She had to leave, hadn't she?
3. I should not complain, should I?
4. Let's talk about it, shall we?
5. She' s taken the test already, hasn'tshe?
6. They'd go with us, wouldn't they?
7. He's writing his Business Plan, isn't he?
8. We'd decided to open a joint account, hadn't we?
9. He'd worked overtime, hadn't he?
10. We have worked hard in the semester, han' t we ? (haven't we?)





*15.2. Finish* ***the*** *questions*

1. We have to sign this,_____?
2. Let's go home,_____?
3. You can't speak French,_____?
4. He ought .to go to Moscow,__?
5. He will meet us at the airport,_____?
6. Students have to register before the end of the first week of class,_____?
7. The clocks will all be set back an hour on the last Sunday in October at 3. 00 a.m. to take advantage of Daylight Savings Time,_____?

***16. Translate into English.***

1. Эта книга не такая интересная, как ты думаешь.
2. Оксфорд — один из самых известных университетов в мире.
3. Чем больше вы учите в течение семестра, тем меньше вам придется заниматься перед экзаменами.
4. Мы перевели тест быстрее всех в группе.
5. Нью-Йорк является самым крупным из американских городов.
6. Кит — это крупнейшее из известных животных.
7. Эта строительная компания считается лучшей в своем деле.

## *17. How to correctly use Present Perfect, Present Perfect Continuous and Past Indefinite Tenses*

1. How often have you been to London?
2. I have read this book three times.
3. Joy has been in London since the middle of July.
4. They have been living in Leeds for several years.
5. — How long have you been learning English?
   — I have been learning English since last October.
6. — Have you ever been to Belgrade?
   — Yes, I've been there once. I went there in 1996.

7. — Have you ever traveled by air?
• — Yes, I've often traveled by air. I flew round the world two years ago

*READ FOR FUN*

1.
—Which word is shorter if you put another syllable on the end?
— Oh, there' s no answer to that question. You can't make a word shorter by putting a syllable on the end.
— Oh, yes, you can. It's the word "short". If you put the syllable— *er* on the end, it's shorter.

*2. Read and try to retell the anecdote changing Direct Speech into Indirect*

A tramp is asking a farmer for work.
"You can gather eggs for me", says the farmer, "if you don't steal any".
"Sir", answers the tramp with tears in his eyes", you can trust me. For twenty years I was a manager of a bathhouse and I never took a bath".

# Lesson 3.
# CONSTRUCTION WORKS

## *1. Read and translate the text*

### Construction Works

### I

The first houses were built for the purpose of protecting their owners from the weather and, therefore, were very simple—a roof to keep off the rain or snow, and walls to keep out the wind.

The building erected now can be divided into two broad classifications: they are either for housing or for industrial purpose.

As far as the material is concerned, the building can be divided into stone (or brick), wood and concrete types. The brick is an artifical material made of clay then burnt to harden it. The natural stone (rubble masonry) is used for footing and foundations for external walls carrying the load. The buildings made of stone or brick are durable, fire-proof and have poor heat conductivity.

The tiers or levels which divide a building into stages or stories are called floors. These may be of timber but in stone buildings they are made of ferro-concrete details in great and small sizes.

The coverings or upper parts of buildings constructed over to keep out rain and wind and to preserve the interior from exposure to the weather, are called roofs. These should tie the walls and give strength and firmness to the construction.

Every building must be beautiful in appearance and proportional in various parts. The interior should be planned to suit the requirements of the occupants while the exterior must be simple without any excesses.

Any building should be provided with water, electricity, ventilation and heating system.

Getting water into the house is called plumbing. The plumbers

have also to get the water out after it has been used. The first part of this problem is called water supply and the second one is called drainage or Sewerage.

П

Almost everybody saw the construction of a building and *followed its progress with interest[1]. First the excavation is dug for the basement, then the foundation walls below ground level are constructed; after this the framework is erected and clothed with various finishing materials and protected by several coats of paint.

The part upon which the stability of the structure depends is the framework. It is intended for safety carrying the loads imposed. The floors, walls, roofs and other parts of the building must be carefully designed and proportioned.

The *architect* or *designer* must decide, what the size of the walls, the floors, the beams, the girders and the parts, which make up the framework, will be and how they will be placed and arranged.

Here are the main parts of a building and their functions.

V *Foundations* serve to keep the walls and floors from contact with the soil, to guard them against the action of frost, to prevent thefn from sinking and setding which cause cracks in walls and uneven floors.

*Floors* divide the building into stories. They may be either of timber or may be constructed of a fire-resisting material. Walls are built to enclose areas and carry the weight of floors and roofs. The walls may be solid or hollow. The materials used for the walls construction can be brick, stone, concrete and other natural or artificial materials.

*Roofs* cover the building and protect it from exposure to the weather. They tie the walls and give strength and firmness to the structure.

Ill

*Turnkey construction* is the type of assistance in building different facilities. In this case the employer engages the contractor to design, manufacture, test, deliver, install, complete and commission a certain project and the *contractor* undertakes full responsibility for the project construction and commissioning.

The contractor then undertakes endeavors to conduct a survey and design work, as well as to work out *basic and detailed engineering[2] and supply equipment. As a rule, the contractor's highly qualified specialists are made responsible for doing part or full construction works, carrying out installation, *start-up and adjustment operations[3].





After the construction is completed the precommissioning starts, that is testing, checking and meeting other requirements, which are specified in the technical handbooks.

As soon as all works in respect of the precommissioning are completed and the project is ready for the commissioning, the contractor notifies the *engineer (Project manager)* with the message. The contractor begins the commissioning immediately after the engineer does the issue of the *Completion Certificate*.

The contractor carries out the guarantee test during the commissioning to make sure that the project will reach the designed performance.

Operational acceptance of the project takes place when the guarantee test has been successfully completed and the guarantees met. As a rule the contractor supplies spare parts so that the project could normally operate during the maintenance guarantee period.

Turnkey contracts are always long-term undertakings involving several parties, among them foreign and local subcontractors. They are usually won as a result of tenders where the bidders compete for the contract on the terms most favourable for the customer. •

## *2. A few explanations to the text*

1... .followed its progress with interest.—с интересом следил за его ростом

2. basic and detailed engineering — выполнение проектной документации

3. starting up and adjustment operations—пуско-наладочные работы

## *3. Key vocabulary / expressions*

basement ['beizmant] —и фундамент, основание; подвал
beam [bi:m]—*n* балка, балансир
cause [ko:z]—*n* причина, сторона

coat —*n* покрытие, ~ шаслой (краски)
commission—v пускать в эксплуатацию
contractor—*n* подрядчик
designed performance — проектная мощность
foundation [faun'deijn] —*n* основание, фундамент
framework ['freimwa:k] —*n* конструкция, структура
girder [' ga :da]- *n* поясная балка, прогон
precornrnissioning works—предпусковые работы
spare parts—v запасные части
timber ['timba] —*n* лесоматериал, строевой лес, балка

## *4. Learn to recognize the international words. Give Russian equivalents to the following words without a dictionary*

| | |
|---|---|
| plan [plaen] | factor ['faekta] |
| occupant ['okjupsnt] | strategy ['straetac^i] |
| process [prousas] | provision [prэЧ^зэп] |
| part [pa:t] | concept [' konsspt] |
| bank [baenk] | position [pa'zijn] |
| pneumatic [njut'maetik] | dranaige ['draenicrj] |
| guarentee [gaeran'ti:] | control [ksn'trol] |
| ventilation [venti'leijn] | conductor [kan'dAkta] |
| canal ['kaenal] | commissiontks'mijn] |

## *5. Test your own attention. Find English equivalents in the text*

огнеупорный материал_____
бутовая кладка_____
дополнительная нагрузка_____
различные отделочные материалы_____
защитить несколькими слоями краски___
нулевой цикл_____
сертификат о завершении строительства.
строительство "под ключ"_____
проектно-изыскательские работы_____
местные и иностранные субподрядчики_





## *6. General understanding. Answer the guestions to the text*

1. What purpose is the natural stone used for?
2. What are the buildings made of stone and brick?
3. Should the coverings tie the walls?
4. What must every building be?
5. What are the main parts of a building?
6. What are their functions?
7. What kind of facilities is constructed on a turnkey basis?
8. What are the responsibilities of the contractor?
9. Why is a turnkey contract a long-term undertaking?
10. How is a turnkey contract usually won?
11. What can the Completion Certificate tell us about?
12. What building professions have you come across in the text?

## *7. HOME READING. For further reading on the given topic we recommend Supplementary texts*

1. The Moscow Kremlin, p.p. 133-135.
2. Flood Defence System, p.p. 135-136.

## *8. Phonetic drill. Mind the pronunciation of the following words with the italicized letters*

[a:] task, mask, past, passer-by, mast, cast
[i:] receive, seize, conceit, forfeit; believe, piece, relief, **thief,** siege / *but* friend [frend], ancient ['einjant]
[kw] quite, **quit, quiet,** quiz, equal, quantity, quote

## *9. Word construction (Different ways to construct words)*

*9.1. prefixes:*
en — (em—*before b, p, m)* придает значение
—включения внутрь чего-либо:
*ex.* to encage — сажать в клетку; to entruck — сажать на грузовик;
— приведения в какое-либо состояние:
*ex.* to enslave — порабощать; to encourage — ободрять.

*Translate the following words keeping in mind their prefixes*
enclose, enable, encounter, enact, emplane, encamp, embank, encase, enchant, encircle, embody, empoison,, encompass, encapsulate, enclose, embed, empurple, enrich.

*9.2. State to what part of speech the following words belong according to their suffixes.*
builder, appearance, possible, action, carefully, structure, competitor, equipment, military, deployment, specific, customer, hydraulic, competitive, remember, consistency, character, assistant, electrical, clearly, energy, useful, building.

*9.3. Translate the following words as nouns and as verbs.*
change, design, mention, place, manufacture, state, engineer, use, target, base

## *10. Match the verb to the correct preposition*

| | |
|---|---|
| 1. conflict | a) against |
| 2. protect | b)into |
| 3. distinguish | c) with |
| 4. find | d)to |
| 5. concern | e)out |
| 6. divide | f)at |
| 7. lead | g) from |
| 8. borrow | h)for |
| 9. intend | |
| 10. deal | |

## *//. Speaking Practice. Discuss the topic "My University" with your partner using such words as*

educational year, scientific work, course paper, to be founded by / in, period, to have a break, to be situated in, to be ready with, it takes me…. to get to the university, a first-year student, exams, to be late, prelim, student's book, schedule, semester, to iast for, monitor, alumni, my favourite subject, to choose, prestigious, time-table, etc.





## Let's Revise **the Grammar**
## **(see Grammar Appendix p.p. 213-216)**

## *12. Translate the following sentences. Explain the meaning of the modal verbs can, may and must*

A

1. He can translate this text without a distionary. Can you translate it without a dictionary? — No, I cannot (I can't), I am not an expert in English.
2. Can a little boy lift a car? — No, he can't. He cannot do it because the car is too heavy for him.
3. If you cannot have the best, make the best of what you have.

B

1. May I smoke here?—Yes, of course you may, but you mustn't. You better smoke only in the smoking-room.
2. May we use a dictionary at the exam?—I think, you needn't.
3. The teacher said that we might use a dictionary, if we could not do without it.

C

1. The students must stand up when the professor comes in.
2. Must the students stand up when the professor comes in? — Yes, they must.
3. When must the lecture begin?—According to the timetable, the lecture must begin at 9.30 a.m.

## *13. Translate into English using MODAL VERBS*

1. Я могу вам помочь? — Да, пожалуйста.
2. Сейчас каждый может воспользоваться интернетом, не так ли?
3. Никто не должен входить в лабораторию во время проведения эксперимента.
4. В соответствии с планом тестирование должно начаться ровно в 5 часов.
5. Вы не могли бы мне помочь?

6. Можно включить телевизор? — Боюсь, что нет, я должен готовиться к экзаменам.
7. Чем могу быть вам полезен? — Вы не могли бы объяснить мне этот новый материал еще раз?
8. Мы можем посмотреть этот старый фильм только в одном кинотеатре города.
9. Вам следует прослушать курс лекций этого профессора.
10. Вам следует сделать все, чтобы удовлетворить требования вашего консультанта.
11. Вам следует быть убедительным при подаче документов на строительство.

## *14. Translate the sentences with MODAL VERBS or their EQUIVALENTS.*

1. The walls may be solid or hollow.
2. The materials used for the walls construction can be brick, stone, concrete and other natural or artificial materials.
3. Man had to protect himself against the elements and to sustain himself in the conflict with nature.
4. Ruins of ancient buildings can be seen today in Greece.
5. After the war steel was short in Europe and many architects had to use concrete in their structures.
*K* The production of many building materials is to be increased.
7. The roof should tie the walls and give strength to the construction.
8. The floors, walls, roofs and other parts of the building must be carefully designed and proportioned.
9. Conditioning air for human comfort may also be divided into two main sections- winter and summer.
10. To avoid stuffiness, the air should be given a certain amount of motion.
11. Under winter conditions this must be sufficient to distribute the heat uniformly throughout the rooms.
• 12. About 100,000 people had to take part in the construction of pyramids.





## *15. Translate the sentences with the construction "there is/are, etc".*

1. There are two new hotels under construction in this part of the city.
2. There exist at present different varieties of bricks.
3. There was a big transition in concrete during the times of Julus Ceasar.
4. There are many ancient buildings made of concrete remaining in Rome till nowadays.
5. Many thousands of years ago there were no houses such as people live in today.
6. There will be a need to make remodeling of the flat in a year.
7. There are evidences that ancient Greeks also used concrete in the building purposes.
8. There will be offices and shops on both sides of the avenue after its reconstruction.
9. There are parks, cycling and walking tracks, and lakes in many parts of Canberra.

## *TIME FOR FUN*

### *1. Compile as many words as you can with the letters of the word CONSIDERATION*

**Remember:** this is an opportunity to revise your active vocabulary!
**ex.** *side, ratio, nation, contain, near, tone, insane, read, reason, coin*

### *2. Read and discuss with your partner the following statements*

Life is a great big canvas; throw all paint on it you can.
*Danny Kaye*

You cannot have everything. Where would you put it?
*Steven Wright*

*3. Read and discuss the anecdote with your partner*

Joseph Turner was a great English painter. He had a dog. He liked his dog very much.

One day he was playing with his dog. Suddenly the dog broke his leg. Turner sent for a well-known doctor.

When the doctor came, Turner said, "Doctor, my dog has broken his leg. I know that you are too good for this work but please do it. It is so important to me".

The doctor was angry but he did not show it.

The next day the doctor asked Turner to come to his place. Turner promised to come as he thought that the doctor wanted to see him about his dog.

When Turner came to the doctor's house, the doctor said, "Mr. Turner, I'm so glad to see you. I'd like to ask you to paint my door. I know that you are too good for this work but, please, do it. It is so important to me".

# Lesson 4. SOME BUILDING PROFESSIONS

*1. Read and translate the text*

## Some Building Professions

A man, who has been an apprentice for some years in a building trade and has therefore enough skill *to be considered a skilled worker at his trade[1], is called tradesman or craftsman.

He may be a carpenter-and-joiner, bricklayer, mason, *slater-and-tiler[2], plumber, electrician, house painter, glazier, floor-and-wall tiler, plasterer, paper-hanger, steeplejack, *hot water fitter[3] and so on.

*Bricklayer* is a tradesman who builds and repairs brickwork, lays and joints salt glazed stoneware drains, sets, chimney pots, manhole frames and fireplaces. He renders brickwork, including the insides of manholes. A sewer and tunnel bricklayer is a specialized bricklayer. In some districts of Greart Britain, bricklayers also fix wall and flooring tiles and slating and lay plaster and granolithic floors. But elsewhere these are plasterer's specialities.

*Carpenter* is a man who erects wood frames, fits joints, fixes wood floors, stairs and window frames, asbestos sheeting and other wallboard. He builds or dismantles wood or metal formwork. The two trades of carpenter and joiner were originally the same, and most men can do both, but specialize in one or the other. In the USA the term "carpenter" includes a joiner. The word is derived from the French word *charpente,* which means a wood or metal framework.

*Joiner* is a man who makes joinery and works mainly at the bench on wood, which has been cut and shaped by the machinists. His work is finer than the carpenter's, much of it being highly finished and done in a joinery shop *which is not exposed to weather[4].

In Scotland a joiner is a carpenter-and-joiner.

*Mason* is a stone worker or stone setter. In Scotland and the USA a bricklayer is usually also a mason. A fixer or a fixer mason or a builder mason is a mason who sets prepared stones in walls, whether the stone be only facing or to the full wall thickness.

*Plasterer* is a tradesman who may be a fibrous plasterer or a plasterer in solid work. The latter lays successive coats of plaster or rendering and fixes fibrous plaster such as mould cornices and wall pattern. *He can use a horsed mould, erect lathing for plaster, and apply stucco[5].

*A construction manager,* or CM, provides services similar to those of general constractor, but represents client's interest during all phases of the building process — design as well as construction. They are usually paid a negotiated fee for the scope of services rendered.

For example, working with the architect during design, the CM provides updated cost projections so that a client will know probable costs, which the project evolves. A general constractor, however, doesn't usually enter the scene until after the design is complete.

The CM decides who bids the job, picks up the request for invitation to bid, evaluates the bids, and awards work to the most reasonable bidder. The CM also prepares contracts and sends them out to the subcontractors. The owner signs the contracts with each subcontractor, unlike a general constractor who signs these contracts. As a result, the subcontractors are under the CM's direction.

The CM may also be responsible for the safety of workers on the construction site.

## *2. A few explanations to the text.*

1. ...to be considered a skilled worker at his trade — может считаться искусным в своем ремесле
2. ...slater-and-tiler — кровельщик (мастер по укладке черепицы)
3. ___hot water fitter—теплотехник
4. ___which is not exposed to weather—который не подвержен погоде
5. He can use horsed mould, erect lathing for plaster, and apply stucco — Он может использовать опалубку для бетона, крепить сетку под штукатурку и применять отделочный гипс.





## *3. Key vocabulary / expressions*

apprentice [a'prentis] —*n* ученик, подмастерье
bid [bid] —*n* предложение цены; претензия
carpenter ['karpinta] —*n* плотник
chimney [' t fimni] —*n* труба, дымоход
cornice ['ko:nis] —*n* карниз
drain [drein] — *n* дренажная труба, канава; v дренировать, осушать
expose [iks'pouz] — v выставлять(иало/саз, *на продажу),* подвергать *(опасности)*
granolithic [grasna'liOik] —*adj.* сделанный из искусственного гранита
joiner ['djoina] —*n* столяр
lathing ['leiSirj] — *n* сетка *(под штукатурку)*
mould [mould] —*n* форма, *тех.* лекало, шаблон; v формовать, делать по шаблону
plumber ['p1лтэ] —*n* водопроводчик; паяльщик
render ['rends] —v воздавать; представлять; делать, превращать
request [ri'kwest] —*n* просьба, требование; *ком.* спрос
sheet [Ti:t] —*n* лист *(бумаги и т. п.);* ~ iron листовое железо

## *4. Phonetic drill. Read the words paying attention to the pronunciation of the italicized letters*

*4.1.* [o:] was warm warrant want water wallet walk
wash warrior warn wander watch walrus wall
*4.2.* attempt [э 'tempt], prompt [ prompt], doubt [daut], debt [det]

## 5. *International words. Give Russian equivalents to the following words without a dictionary*

| | |
|---|---|
| idea [ai'dig] | profession [pra'feln] |
| energy ['engidji] | reclamation [rekls'meijn] |
| author ['o:0э] | intervention [int9:'venjn] |
| culture ['kAltfe] | bilateral [bai' laetaral] |
| original [э' пфэп1] | ceramic [si' ra;mik] |
| adaptation [sdaep'teijn] | zoological [zoua'lodjikal] |
| massif ['massif] | function [Тлпк/эп] |
| nature [heitfe] | detail ['di:teil] |

## *6. Have you read the text attentively? Give equivalent English phrases to the following Russian ones*

мастер по укладке черепицы_____
считаться искусным в своем ремесле_____
быть подверженным влиянию погоды_____
многослойная штукатурка_____
столярная мастерская_____
верхолаз_____
каменщик_____

## *7. Add the missing information from the text*

1… .is called tradesman or craftsman.
2. A fixer or a fixer mason or a builder mason is a mason who….
3. In the US A the term….
4. In some districts..., and slating and lay plaster and granolithic floors.
5…., including the insides of manholes.

## *8. Word construction (Different ways to construct words)*

*8.1. Translate the following words Keeping in mind their suffixes andprefixes*

'contract — con'tractor — con'tracted — con'tractual — subcon'tractor

'enterprise — entrepreneur — enterpre'neurship — entrepreneurial

pro'vide — pro'vider — 'provident — 'providently — providential — 'providence — pro'vision

*8.2. Arrange the given words in pairs of*

a) synonyms

build, wood, job, assistance, requirement, manufacture, apartment, usual, supply, different, timber, construct, entirely, produce, work, factory, various, up-to-date, provide, ordinary, help, flat, plant, modern, demand, completely





b) antonyms

dismantle, useless, bottom, unusual, increase, speed up, adverse, heavy, usefull, slow down, usual, light, assemble, reduce, upper floor, favourable

## *9. Choose and use. Remember the difference between the use of the verbs* make *and* do

| make | | |
|---|---|---|
| certain | a contribution | a mistake |
| a journey | a complaint | a charge |
| money | a choice | a discovery |
| sure | an excuse | use of |
| a trip | an inquiry | room for |

| do | | |
|---|---|---|
| good | a sum | an experiment |
| harm | one's best | a favour |
| business | one's duty | a test |
| lessons | damage | the room |
| work | housework | the washing-up |

*9.1. Insert the necessary verb:*

1. If he … a mistake, he will have to… his lesson again.
2. It will only … you good.
3. Don't worry; I will try to … my best to help you.
4. She would like to … a journey to Italy this summer.
5. Housewives usually… their washing-up on Saturdays.
6. He just… an excuse and disappeared.
7. We are to … choices pretty often in our lives.
8. It will not… you any harm.
9. If a person likes his or her business, he or she will… it thoroughly.
10. The earthquake … a lot of damage to the location.
11. Joseph .. .his test better than anybody else in the group.
12. Joiner is a man who … joinery.

*9.2. Translate the sentences with different meanings of the word make*

1. Make sure that the door is locked when leaving your apartment.
2. Let's make it up.
3. As you make the bed, so you will lie in it.
4. What am I to make of your behavior?
5. Two and three make five.
6. You must make up your mind about this business till next Monday.
7. — Have you heard anything about John?—Yes, I know that he is in the start-up business now and is completely on the make.
8. Do you agree that a smiling boss makes for a happy and more productive employee?

## *10. Learn the dialogue by heart*

*Boss:* The customer said he wanted thicker lino for the floor.
*Worker:* Did he say anything about the colour?
*Boss:* Yes, the colour should be matched with the walls colour.
*Worker:* So, the colour must be light, much more lighter that the lino we have now.
*Boss:* I'll order to bring the proper lino tomorrow.
*Worker:* Ok. And we'll also need two types of marble tiles for the toilets and the bathrooms.
*Boss:* Yes, I have just ordered it.

## *//. Home reading. For further reading on the given topic we recommend texts*

1. Washington, D.C. p.p. 136-137.
2. Lincoln Memorial, p.p. 138-139.
3. New-York. p.p. 139-141.
4. London, p.p. 131-143.





## Let's Revise the Grammar
(see **Grammar Appendix p.p. 221-224)**

## *12. Translate the following sentences with PASSIVE VOICE*

1. Engineering is divided into many branches.
2. A joinery shop must not be exposed to weather.
3. Walls are built to enclose areas and carry the weight of floors and roofs.
4. The word is derived from the French word *charpente,* which means a wood or metal framework.
5. First the excavation is dug for the basement, and then the foundation walls below ground level are constructed.
6. The joiner's work is finer than the carpenter's, much of it being highly finished and done in a joinery shop.
7. An outlet for this air should be provided in order to have good ventilation.
8. Many new methods of building have been discovered during the last hundred years.
9. Operational acceptance of the project takes place when the guarantee test has been successfully completed and the guarantees met.
10. After the war more than 90% of the old part of the city was left in ruins.
11. In 1954 the last tram was removed from the streets.
12. The town was perched on the hill.

## *13. Translate into English paying attention to PASSIVE VOICE*

1. Когда был построен этот небоскреб?
2. Лекции по философии посещаются всеми студентами нашей группы.
3. Строительство этого моста должно быть завершено к следующему месяцу.
4. Все строительные работы должны быть закончены к концу года.

5. Этот дом должен быть тщательно осмотрен, прежде чем его снесут.
6. Эти вопросы решаются подрядчиком.
7. Цемент использовался египтянами при строительстве мостов, дорог и городских стен.

*14. Translate into Russian paying attention to PASSIVE CONSTRUCTION*

1. The ancient city of Troy was excavated by Schlieman.
2. The guarantee test is carried out by the contractor during commissioning.
3. This manual was written by our professor.
4. The theatre is praised by the experts as a milestone in city architecture.
5. Buildings having architectural or historical value are protected by law.
6. The new art gallery has been visited by many people.
7. The course papers will have been finished by the students by the end of December.
8. The City Hall was restored by the citizens after the World War II.

*15. Translate the following sentences with CONTINUOUS TENSES (ACTIVE AND PASSIVE)*

1. We are discussing what we can do about the situation.
2. We are dreaming about a beautiful house.
3. A new road is being built not far from our district.
4. I was working on my report the whole day yesterday.
5. Don't worry! The project of the new theatre is being designed by our professionals.
6. When we came to that town again, a new mall was being constructed there.
7. She is constantly missing our discussions.
8. The air-conditioning system is being installed in our office now.
9. The moulds are being filled by concrete at the moment.
10. Look! The wall is falling down!





*READ FOR FUN*

*1. Listen to the text. Explain the meanings of the word* ***PAINT.***

One day a painter, looking out of the window, saw an old country man going by and thought the man would make a good subject for a picture. So he sent his servant to tell the man that her master would like to paint him. The old man hesitated and asked what the painter would pay him. She said he would pay him a pound. The old man still hesitated. "Come on", she said. "It's an easy way to earn a pound". "Oh, I know that," he answered. "I was only wondering how I should get the paint off afterwards".

# Lesson 5.
# MODERN BUILDING MATERIALS

*1. Read and translate the text*

## Modern Building Materials

### I

Some of the most important building materials are: timber, brick, stone, concrete, metal, plastics and glass.

*Timber* is provided by different kinds of trees. Timbers used for building purposes are divided into two groups called softwoods and hardwoods. Timber is at present not so much used in building construction, as in railway engineering, in mining and in the chemical industry where it provides a number of valuable materials.

However, timber is still employed as a building material in the form of boards. For the interior of buildings plywood and veneer serve a number of purposes.

*A brick* is best described as a "building unit". It may be made of clay by moulding and baking in kilns, of concrete, of mortar or of a composition of sawdust and other materials. In shape it is a rectangular solid and its weight is from 6 $V_2$ to 9 lb.

There exists variety of bricks for different purposes: ordinary, hollow or porous, lightweight, multicolor bricks for decorative purposes, etc. Bricks are usually laid in place with the help of mortar.

The shape and convenient size of brick enables a man to grip it with an easy confidence and, because of this, brick building has been popular for many hundreds of years. The hand of the average man is large enough to take a brick and he is able to handle more than 500 bricks in an eight-hour working day.





It is necessary, therefore, for the "would be" bricklayer to practise handling a brick until he can control it with complete mastery and until he is able to place it into any desired position.

The brick may be securely handled by placing the hand over the surface of the upper part of a brick and by placing the thumb centrally down the face of the brick with *the first joints of the fingers[1] on the opposite face. It is better to protect the thumb and the fingers with leather pads, which also prevent the skin from rough bricks.

Sometimes natural stones such as marble, granite, basalt, limestone and sandstone are used for the construction of dams and foundations. Marble, granite and sandstone are widely used for decorative purposes as well, especially with the public buildings.

*Natural stone* is used for foundations and for the construction of dams. The main varieties of building stone are basalt, granite, marble, sandstone and limestone.

*Metals: Aluminium*, principally in the form of various alloys, is highly valued for its durability and especially for its light weight, while *brass* is frequently used for decorative purposes in facing.

*Steel* finds its use in corrugated sheets for roofing, for girders, frames, etc. Various shapes are employed in construction.

*Plastics* are artificial materials used in construction work *for a vast number of purposes.[2] Nowadays plastics, which are artificial materials, can be applied to almost every branch of building, from the laying of foundation to the final coat of paint. Synthetic resins are the main raw material for plastics. Plastics have some good advantages as they are lighter than metals, not subject to corrosion, *and they can be easier machined.[3] Besides, they are inflammable, they can take any color and pattern, and they are good electrical insulators. More over, they possess a high resistance to chemical action.

A lot of decorative plastics, now available, have brought about a revolution in interior and exterior design. But plastics are used now not only for decoration. These materials are sufficiently rigid to stand on their own without any support. They can be worked with ordinary builders' tools.

*Laminate* is a strong material manufactured from many layers of paper or textile impregnated with thermosetting resins. This sandwich is then pressed and subjected to heat. Laminate has been devel-

oped for both inside and outside use. It resists severe weather conditions for more than ten years without serious deformation. As a structural material it is recommended for exterior work. Being used for surfacing, laminate gives the tough surface.

*Foamed glass* is a high-porosity heat insulating material, available in block made of fine-ground glass and a frothing agent.

Foamed glass is widely used in prefabricated house building, to ensure heat insulation of exterior wall panels, and in industrial construction.

Foamed glass has a high mechanical strength, is distinguished by moisture, vapour and gas impermeability. It is non-inflammable, offers resistance to frost, possesses a high sound adsorption, and it is easily sewn and nailed.

Structural foamed glass blocks designed to fill ceilings, and for making interior partitions in buildings and rooms, to ensure heat and sound insulation.

For insulation mineral wool or cinder wool is often resorted to.

## *2. A few explanations to the text.*

1. ...the first joints of the fingers — первыми фалангами пальцев
2…. for a vast number of purposes. —для многих целей
3…. and they can be easier machined.—и их легче обработать.

## *3. Key vocabulary / expressions*

consider |kan' sida] —v рассматривать, обсувдать; обдумывать
cross-section ['krosakjn]-*n* поперечное сечение, поперечный разрез, профиль
derive (from)—v получать; извлекать; происходить
froth [froG] — пена; v пениться
handle [hsendl]- v брать руками, держать в руках
impermeability [im рэ:пуэ'Ы1Ш] — и непроницаемость; герметичность
kiln [kiln] —*n* печь для обжига
mortar ['moita]—л раствор
plywood ['plaiwuid]—*n* фанера





resist [ri'zist]—v сопротивляться
sawdust ['so:dAst] —*n* опилки
span —*n* промежуток времени, период времени
subject [sab'drjekt]—v (to) подвергать; подчинять
tensile ['tensail] —*adj* растяжимый
veneer [vi'nia] —*n* шпон, фанера

## *4. Learn to recognize international words. Give Russian equivalents to the following words without a dictionary*

| | |
|---|---|
| industry ['indastri] | focus ['foukas] |
| information [infa'meijn] | emphasis ['emfasiz] |
| progress ['prougras] | hyperbole [hai'pa:boli] |
| brilliant ['brilj ant] | business ['biznis] |
| metal ['metal] | semester [si'mesta] |
| fact [fekt] | company ['клтрЭт] |
| operation [apa'reijn] | enthusiasmfan' Gjuziazm] |

## *5. Phonetic drill*

### *5.1. Read the words keeping in mind different pronounciation of letter c*

[j] sociology, special, official, financial, ancient, depreciation
[s] process, concept, perception, recipient, licence, medicine

### *5.2. Mind the stress when reading*

enumeration, atomic, hydraulic, differentiation, appearance, possible, structure, competitor, equipment, military, deployment, specific, customer, competitive, remember, consistency, character, competition, assistant, pneumatic.

## *6. Wordconstruction (Different ways to construct words)*

### *6.1. Translate the following words Keeping in mind their suffixes. Memorise the words of the same stem*

con' sider—conside' ration — con' siderable — conside'rate
re'late — re'lation — 'relative — 'relatively

com' pose —' composite—compo' sition — com' positive
tense — tensile — tension

*6.2. Translate the following words as nouns and as verbs:*

handle, span, crack, hand, bank, stress, place, approach, result, rule, view, house, market, study, progress, host, offer.

*6.3. Translate the given words keeping in mind that*
приставка/юл—означает отрицание или отсутствие чего-л.

non-military, non-inflammable, non-aggressive, non-effective, non-productive, non-alcoholic, nonretumable, nonforgiving, nonefficient.

## *7. Add the missing parts of the sentences from the text*

1… .for building purposes are divided into two groups called softwoods and hardwoods.
2. However, timber is still employed …
*3....* ordinary, hollow or porous, lightweight, multicolor bricks for decorative purposes, etc.
4. … they use natural stones such as marble, granite, basalt, limestone and sandstone.
5…. while brass is frequently used for decorative purposes in facing.
6. These materials are sufficiently rigid to stand…
*1....* severe weather conditions for more than ten years without serious deformation.
8. …to ensure heat insulation of exterior wall panels, and in industrial construction.
9. It is non-inflammable, offers resistance to frost,...

## *8. Find in the text equivalent English phrases to the following Russian*

прямоугольное твердое тело_____
держать кирпич с легкой уверенностью_____
восьмичасовой рабочий день_____





шлаковая вата_____
преднапряженный бетон_____
площадь поперечного сечения_____
выдержать напряжение растяжения (растягивающее напряжение)_____

## *9. Tell the group about any of the building materials you know better about. Add your own information*

## *10. Speaking Practice*

*10.1. Discuss different building materials from the text with your partner finishing the following phrases:*

1. What you need most of all is…
2. Another important thing is…
3… .can make a real difference.
4. I think … is pretty important too.

*10.2. Combine one word from each section to make at least 8-10 sentences.*

| | | | |
|---|---|---|---|
| I | don't like<br>can't stand<br>hate<br>like<br>look forward to<br>enjoy<br>love<br>'d rather | late<br>strange<br>flight<br>getting<br>losing<br>meeting<br>finding out<br>missing | interesting people<br>schedules<br>drafts<br>new experiences<br>problems<br>sightseeing<br>plans<br>delays<br>new ideas |

*10.3. Speaking Practice. Discuss the topic "My Student's Day" with your partner using such words as*
a technique, to sail through, to stick to, motivation, a long-term goal, to fail in a subject, to work hard at, to make good (poor) progress in, to attend (miss) lectures, to lag behind the group, to

combine work with study, to catch up with the group, to take notes at a lecture, to have a place at the hostel (dormitory, residence), grant, tutor, supervisor, term, semester, (undergraduate student, to specialize in, to be expelled from, well-stocked, campus, recruit, a pass, tutorial, finals, extracurricular, to socialize, grade, to coach, to arrange a seminar, to spare time, to contribute one's time to, a seminar (lecture) on..., to make it a rule to do smth.

## *11. Learn the dialogue by heart*

*Customer.* I would like to order a countryside house. Here is the project.

*Foreman:* Let's see. A two-storey house with a garage. Ten rooms and two staircases. What will the foundation be made of? Concrete?

C: Yes, ferro-concrete.

*F.:* And what about the walls?

*C:* I want red brick walls. The windows are large. By the way, the panes should be airtight. I want them to be double-glazing!

*F.:* We'll make them hermetic with putty. We put it in the grooves, and then fix the panes.

*C:* Excellent. The hinges and handles should be bronze.

*F.:* Ok. What type of roof would you like?

C.: I want the roof to be flat, with a small garden.

*F.:* Do you have an interior-designer?

*C.:* Yes, but the drafts aren't ready.

*F.:* What idea does he have?

C..- There will be a mantelpiece in the hall and the **walls will** be decorated with panels.

*F:* Plastic panels?

*C:* Oh, no. Panels must be made of wood.

*F.:* What wood do you prefer?

C.; I think oak is the best.

*F.:* How do you pay the construction?

*C:* I've got a mortgage for 25 years from the bank.

*F.:* So we'll make oak panels then.





## Let's Revise the Grammar
## (see Grammar Appendix p.p. 239-242)

## *12. Translate the sentences having in mind different use of the verb* to have. *Explain its functions*

1. We'll have them down for a few days.
2. They had enough coal in for the whole winter.
3. I won't have you do it.
4. Please, have your brother bring the book.
5. She had her photo taken.
6. Go and have a lie down.
7. You had better attend the lectures.
8. My watch will have to be fixed by a specialist.
9. The day was cold and she had a hat and an overcoat on.
10. Will you have the goodness to visit them?
11. The knowledge of how to make durable concrete has been lost for centuries.
12. Its successful use has been developed rapidly during the last two decades.

## ***14. Form PARTICIPLE i of the following, verbs and translate them into Russian***

to build, to produce, to become, to realize, to follow, think, to bring, to prevent, to move, to have, to offer, to work, to assemble, to form, to consist, to enter, to develop, to cut, to save.

## ***15. Form PARTICIPLE u of the following verbs and translate them into Russian***

to make, to produce, to burn, to install, to find, to send, to show, to take, to use, to keep, to read, to leave, to cause, to write, to get, to develop, to bring, to discover, to calculate, to change, to found.

*16. Translate the following word-combinations in accord to the given models:*

**Model 1:** студент, посещающий лекции—the student attending lectures
план, содержащий много деталей_____
рабочие, строящие новый дом _____
инженер, использующий новые методы_____
завод, выпускающий автомобили_____

**Model 2:** разрабатывая новые методы—developing new techniques
работая на стройке_____
получая новую информацию_____
строя новый городской театр_____
повторяя материал_____

**Model 3:** полученные результаты—the results achieved / the achieved results
университет, основанный в 19 веке_____
развитые страны_____
автострада, построенная в прошлом году_____
запланированное строительство_____

**Model 4:** поступив в университет — having entered the university
сдав вступительные экзамены_____
закончив строительные работы_____
внедрив новые методы_____
разработав план_____

*17. Translate the following words with the Prticiples I and 11*

1. well-known, well-read, well-armed, well-bred, well-done, well-educated, well-tried, well-founded, well-grounded.

2. well-becoming, well-being, well-liking, well-meaning, well-seeming, well-doing, well-wishing, well-sinking, well-boring.





***18. Translate the sentences and state the functions of the Participles***

1. There are embassies, cycling and walking tracks and lakes in many parts of Canberra.
2. Opera House with its striking architecture is the symbol of Sydney together with the bridge across the natural harbour.
3. Concrete being a brittle material has practically no strength in tension.
4. Being widely distributed stone is available as a building material.

*19. Translate the sentences with the OBJECTIVE PARTICIPLE CONSTRUCTION*

1.1 want the construction be finished by May.
2.1 watched them yesterday installing the new French window.
3. We found him looking through a *Home Plan Ideas* magazine.
4. We watched the new car being examined.
5. Joy got her Roman holiday photos taken.
6. We want our translations corrected as soon as possible.
7.1 have the data of my research published in one of the scientific magazines.

***TIME FOR FUN***

*1. Compile as many words as you can with the letters of the word*

***impermeability.***
**Remember:** this is not a burden, but a great opportunity to revise your active vocabulary!

*2. Read and try to retell the anecdote changing Direct Speech into Indirect.*

A train arrived at a border station. The passengers opened their suitcases and waited for the inspection of their things. One of the

passengers had a lot of packets of cigarettes in his suit-case. He knew they were not duty-free and he decided to put all of them into his pockets. When his pockets were already full of cigarettes he asked a man at the window, "Will you please take some of these packets and put them into your pockets?" "Why don't you leave them in your suit-case? " asked the passenger. "They must be liable to duty and I wouldn't like to pay duty on them, answered the man. "All right, I'll take the cigarettes but I shall not give them back to yon". "Why?" "I am a Customs official".

*3. Write the name of the country next to its currency. Then write the nationality.*

| Currency | Country | Nationality |
|---|---|---|
| dollar | U | Am |
| drachma | G | Greek |
| pound | U K | |
| rand | | South African |
| rouble | | |
| shilling | Austria | |
| won | S_ _____K_____ | ean |
| yen | J_____ | ese |
| yuan | | ese |
| euro | E U | |

***But:*** **euro** is a common European currency for all European countries of Shengen zone.

# Lesson 6.
# MODERN BUILDING MATERIALS

*/. Read and translate the text*

## Modern Building Materials

### П

*Concrete* is perhaps the most widely spread building material used nowadays. Concrete is an artificial stone, made by thoroughly mixing such natural ingredients or aggregates as cement, sand and gravel or broken stone together with sufficient water to produce a mixture of the proper consistency. It has many valuable properties. It sets under water, can be poured into moulds so as to get almost any desirable form, and together with steel in reinforced concrete it has very high strength, and also resists fire. Prestressed concrete is most widely used at present while prefabricated blocks are employed on vast scale for skeleton structures.

AGGREGATES FOR CONCRETE

By the simple definition from the dictionary "aggregates are the materials, such as sand and small stones, that are mixed with cement to form concrete". In other words *aggregates (or cushioning materials)* can be defined as a mass of practically inert mineral materials, which, when surrounded and bonded together by an active binder, form the rock. This rock is denoted by the general term *concrete*.

Aggregates have three principal functions in the concrete: they provide a relatively cheap filler for the concreting material, or binder; they provide a mass of particles which are suitable for resisting the action of applied loads, of abrasion, of percolation of moisture through the mass, and of climate factors; they reduce volume chang-

es resulting from the action of the setting and hardening of the concrete mass.

All aggregates, both natural and artificial, which have sufficient strength and resistance to weathering, and which do not contain harmful impurities may be used for making concrete.

As aggregates such natural materials as sand, pebbles, broken stone, broken brick, gravel, slag, cinder, pumice and others can be used.

PRESTRESSED CONCRETE

*Prestressed concrete* is not a new material. Its successful use has been developed rapidly during the last two decades, chiefly because steel of a more suitable character has been produced. Concrete is strong in compression but weak when used for tensile stresses.

If, therefore, we consider a beam made of plain concrete, and spanning a certain distance, it will at once be realized that the beam's own weight will cause the beam to "sag" or bend. This sagging at once puts the lower edge of the beam in tension, and if the cross-sectional area is small, causes it to break, especially if the span is relatively large.

If, *on the other hand', we use a beam of similar cross-section, but incorporate steel bars in the lower portion, the steel will resist the tensile stress derived from the sag of the beam, and thus assist in preventing it from breaking.

In prestressed concrete steel is not used as reinforcement, but as a means of producing a suitable compressive stress in the concrete. Therefore any beam (or member) made of prestressed concrete is

• permanently under compression, and is consequently devoid of crack under normal loading, or so long as the "elastic limit" is not exceeded.

Prestressed concrete is not only used for beams but is now employed extensively for columns, pipes, and cylindrical water towers, storage tanks, etc.

## *2. A few explanations to the text*

1... .on the other hand, — с другой стороны





## *3. Key vocabulary /expressions*

bend [bend] — v сгибаться; гнуться; изгибаться
crack ['kraek] — *n* 1. треск 2. трещина
desire [di'zaia] — и желание; просьба, требование
gravel ['grasvol] — гравий
load [loud] — *n* груз; нагрузка
sag [sasg] — оседать, обвивать; падать"
store ['sto:]—*n* запас; склад;/?/универсальный магазин
tensile ['tensail]—растяжимый

## *4. Phonetic drill. Read the words paying attention to the pronunciation of the italisized letters*

| | | | | |
|---|---|---|---|---|
| *[s:]* | Purpose | virtual | certain | work |
| | urgent | mirth - | alternate | worse |
| | burden | birch | term | worship |
| | turn | sir | perhaps | worth |
| | surface | fir-tree | external | world |

## 5. *Wordconstruction (Different ways to construct words)*

### *5.1. Write out international words out of the text and translate them without a dictionary*

### *5.2. Translate the following words Keeping in mind their suffixes Memorise the words of the same stem*

em' ploy—employ' ee—em' ployer—em' ployment
'nature — 'natural — 'naturally
compress—compressor—compression

## *6. Add the missing parts of the sentences from the text*

1... .to produce a mixture of the proper consistency.
2. Concrete is an artificial stone, made by thoroughly...
3. ...they provide a relatively cheap filler for the concreting material, or binder;...
4. This sagging at once puts the lower edge...

5—as a means of producing a suitable compressive stress in the concrete.
6… .any beam made of prestressed concrete is permanently under compression...
7. This sagging at once puts the lower edge....

*7. Find in the text equivalent Russian phrases to the following English*

a relatively cheap filler_____
the proper consistency_____
resistance to weathering_____
spanning a certain distance_____
the cross-sectional area_____
negotiated fee_____

*8. Find in the text equivalent English phrases to the following Russian*

вредные примеси_____
удачное использование_____
цементируемый материал_____
искуственный камень_____
быть постоянно под напряжением_____
заполняющие материалы_____

*9. Speaking Practice. Switch on your imagination.*

*9.1. Complete the sentences*

1. The worst thing for me is...
2. What I love most is...
3. The best thing for me is...
4. What I hate most...

*9.2. Let's talk a bit*

1. Why is concrete more fit for foundation?
2. What floor covering is the best?





3. What colour should bedroom walls be? (kitchen walls, living-room walls)
4. What should a chimney be made of?
5. Why is it nice to have a mantelpiece?
6. What timber is considered to be the best for the window frames?
7. What professionals does a construction team need?

*10. We continue enlarging your vocabulary. International words:*

| | |
|---|---|
| ventilation [ventileijn] | portion ['po:Jn] |
| hermetic [ha'metik] | compression [kam'prejn] |
| stress [stres] | mass [mass] |
| mineral [тшпэгэ1] | limit [limit] |
| cylinder ['silinda] | block [blok] |
| elastic [i'lsestik] | tank [taerjk] |
| subordination [s3bo:di'neiJn] | skeleton ['skelitn] |

*//. HOME READING. For further reading on the given topic we recommend Supplementary texts*

Building Materials, p.p. 144-146.

**Let's Revise the Grammar**
**(see Grammar Appendix p.p. 237-239)**

***12. Translate the following words using GERUND***

a) into English
изучение, тренировка, получение, увеличение, уменьшение, построение, написание, общение, предотвращение, создание.

b) into Russian.
writing-table, computing machine, drawing-table, measuring

devices, building materials, dining-room, reading-room, looking-glass, adding machine.

*13. Translate the sentences paying attention to GERUND*

1. What I really like is finding out about different cultures.
2. The thing I love most is singhtseeing.
3. The best thing for me is socializing with my friends.
4. Concrete is made by thoroughly mixing cement, sand and gravel.
5. All aggregates may be used for making concrete.
6. The steel will resist the tensile stress and thus assist in preventing the beam from breaking.
7. The term "engineering" means the art of designing, construction or using engines.
8. The ancient Egyptians often erected their huge buildings without thinking of their usefulness.
9. A person can't be successful without clear understanding of goals in his life.
10. It goes without saying.
11. One can't be healthy without giving up bad habits.

*14. State the functions of GERUND in the following sentences and translate them into Russian*

1. Cutting stones and timbers became possible with the invention of tools.
2. By using industrial methods of construction the speed of construction may be considerably increased.
3. Erecting tall buildings without using building mechanisms is now unthinkable.
4. Methods of designing structures are changing.
5. Up-to-date building is based upon using industrial methods ofwork.
6. What other materials are used for facing the external walls of a building?
7. The new method is very efficient and besides it plays an important role in saving materials.





*15. Translate the sentences into English using GERUND*

1. Вредно так много курить.
2. Эта статья трудная. Вы не можете перевести ее без использования словаря.
3. Она любила путешествовать по стране.
4. Недолго думая, он согласился с их предложением.
5. Вместо того чтобы реставрировать старый городской драмтеатр, они решили строить новый в центре города.
6. Ничто не могло помешать ему построить новый дом.
7. У тебя есть какая-нибудь трудность в решении этой проблемы?
8. Есть ли у них подходящий строительный материал?
9. Подрядчик отвечает за то, чтобы работа была выполнена вовремя.

***TIME FOR FUN***

*1. Read the small dialogues in pairs*

I

*Professor:* Why are you late?
*Student:* Class started before I got here.

II

*Teacher:* Which is farther away, Anthony, themoon or **China?**
*Anthony:* China.
*Teacher:* What makes you think that?
*Anthony:* Because we can see the moon any **clear night and we** can't see China.

**Ill**

*Father:* I see you did very badly in your History examination.
*Son:* It wasn't my fault. They asked me about things that happened long before I was born.

*2. What do you think we can see with our eyes shut?*

*3. Read and try to retell the anecdote changing the Direct Speech into Indirect.*

Once a French cabman played a good joke on Conan Doyle. When Conan Doyle arrived in Paris it was raining heavily. He took a cab and asked the cabman to take him to the Ritz Hotel as he had reserved a room there a few days before.

The cabman brought him to the hotel. When he had received his fare he said, "Thank you, Mr. Conan Doyle". "How do you know my name?" asked Conan Doyle.

"Well, sir," replied the driver, "the other day I saw in the papers that you were coming from the South of France to Paris. Your appearance told me you were British, and I also saw you had had your hair cut in the South of France. So I decided it was you.

"You are a wonderful detective," said Conan Doyle. "Were there any other things about me, that could help you to think it was I?"

"Well," said the cabman, "there was also your name on your suit-case, sir".

# Lesson 7.
# SILICATE INDUSTRY

*1. Read and translate the text*

## Silicate Industry

*Silicate industry* is the industry processing the natural compounds of silicon. *It embraces the production of cement, glass, and ceramics[1].

The production of ceramic goods is based on the property of clay when mixed with water to form putty, from which various articles can easily be moulded. When these are dried and then for easily moulding baked, that is, ignited at a high temperature, they become hard and retain their shape, no longer being softened by water.

In this way clay, mixed water and sand is moulded into bricks, which are then dried and baked. The materials used to make silicate bricks are white sand and slaked lime.

*Cement Production*. Cement is made from limestone and clay, or from their natural mixture, marls. The materials roasted in cylindrical rotary kilns are charged into a slowly rotating kiln at its upper end and travel, mixing continuously, towards the lower end, while a current of hot gases, the products of the burning of fuel, flows in the opposite direction. During the period of their movement through the kiln the clay and the limestone react chemically, and the material emerging from the kiln in lumps of a caked mass is cement, which is then grounded.

When cement is mixed with water, it forms mortar, which hardens, binding various objects, such as bricks or stones, very firmly. It is for this reason that cement is used widely as a binding materials in large-scale construction, including underwater construction.

Cement is often mixed with sand or gravel, in which case we get concrete. Concrete has roughly the same coefficient of thermal expansion as iron.

*Glass Production*. The initial materials for the production of ordinary glass are mainly soda, limestone, and sand. A mixture of these substances is heated in a bath-shaped furnace.

When it cools, the liquid mass of glass *does not become hard at once[2]. At first it becomes viscous and readily assumes any shape. This property of glass is used in making various articles out of it. Definite portions of the cooling semiliquid mass are taken from the bath, and these are blown or pressed to make various glassware. By machine methods glass sheets, tubes, etc., can be drawn continuously from the molten mass.

*Sand is* the chief material used as a fine aggregate. It is required in mortar or concrete for economy and to prevent the excessive cracking. Mortar made without sand would be expensive.

The word "sand" is applied to any finely divided material which will not injuriously affect the cement or lime and *which is not subject to disintegration or decay[3]. Sand is almost the only material which is sufficiently cheap and which can fulfil these requirements.

A mixture of coarse and fine grains is very satisfactory, as it makes a denser and stronger concrete with a less amount of cement than when only fine-grained sand is used.

The following sands are used for mortars: pit or quarry sand, river sand and sea sand.

*Lime* is a calcium oxide. It is used in great quantities for mortar and plaster. Lime (quicklime) is a white solid that reacts violently with water to form calcium hydroxide. It is made by heating limestone in a special kind of furnace called a "kiln". Lime must be stored in a dry place, otherwise it will absorb moisture.

Limes may be divided into three distinct classes:

/. *Rich limes* that contain not more than 6 percent of impurities, slake very rapidly, and are entirely dependent *on external agents for setting power[4]. These are widely used for interior plasterer's works.

*2. Poor limes* that contain from 15 percent to 30 percent of useless impurities and possess the general properties of rich limes, only to a lesser degree.

*3. Hydraulic limes* that contain certain proportions of impurities, which when calcinated, combine with the lime and endow it with the valuable property of setting under water or without external agents.

Lime is a basic building material extensively used all over the world, but it was not until the later years of the 19th century that a greater appreciation of the fuel-burning problems involved became





apparent. Until this time the requirement for lime was largely agricultural and it was produced by farmers or by small builders who used it for making mortar and plaster.

As industrial requirements increased "running" kilns were developed. These were lined with firebrick and charged at regular intervals with stone and fuel.

. Around the world there are many different types of kilns and variations in lime-burning practice.

## *2. A few explanations to the text.*

1. It embraces the production of cement, glass, and ceramics. — Она включает производство цемента, стекла и керамики.
2… .does not become hard at once. — . . .не застывает сразу.
3…. ,which is not subject to disintegration or decay.—который не подвержен разрушению или загниванию.
4. ...on external agents for setting power — от внешнего фактора для застывания

## *3. Key vocabulary / expressions*

bind [baund] — v (bound) связывать; скреплять
embrace [im' breis]—v включать, охватывать
grind [graind] —v (ground) размалывать
ignite [ig'nait] — v зажигать; загораться; прокаливать
impurity [im' pjuariti] — *n* примесь
lump [1лтр] —*n* глыба; комок
pit [pit] — *n* яма; копь; шахта
putty ['pAti] —*n* замазка
quarry ['kwori]—и каменоломня, карьер
roast [roast]—v обжигать; кальцинировать
slake [sleik] — v гасить (известь)

## *4. Read the words paying attention to different pronunciation of letter "c". Translate from English into Russian*

crucial, specific, special, sociology, licence, financial, associate, medicine

concept, perception, beneficiary, process, percent, essentially, presidential

*5. Word construction. (Different ways to construct the words). Give antonyms to the following words*

misunderstand, dislike, unlock, nonprofitable, irregular, truthless, dissatisfied, illegal, useless, indifferent, lawless, unskilled, misfortune, nonessential, important, meaningful, displeased, imperfect, unfair, inactive, indefinite.

*6. Match the halves of the following questions.*

| | |
|---|---|
| Could you | not smoking, please? |
| Would you mind | switch off your laptop, please? |
| Can you tell me | make sure the letter is received? |
| Would you please | what is the time now, please? |
| Could I ask you | send an e-mail? |
| Is there somewhere I could | borrow your mobole? |
| | to wait for me outside? |

*7. Find the following words and word combinations in the text*

жидкая масса _____

изделия из стекла_____

природная смесь_____

расплавленная масса_

связующее вещество_

цилиндрическая вращающаяся печь_

нагревание известняка_____

изготовление раствора и штукатурки,

гашеная известь_____,_____





*8. Complete the sentences with the information from the text*

1. A mixture of coarse and fine grains...
2___often mixed with sand or gravel...
3. The production of ceramic goods is based on the property of clay...
4… .is moulded into bricks, which are then dried and baked..
5. The following sands are used for mortars:…
6. Until this time the requirement for lime was largely agricultural...

*9. Explain in English the meaning of the following words. Do it in the most detailed words*

cooling_____,_____
putty _____
slaked lime_____;_____
mortar_____
running kilns_____

*10. Group these phrases under the following headings:*

a) *Cement Production*
b) *Glass Production*

to roast in; large-scale construction; ordinary glass; to move through the kiln; building material; bath-shaped furnace; definite portions; cylindrical rotary kilns; to ignite at a temperature; a mixture of substances; cooling semiliquid mass; to press; the molten mass.

*//. Speak about the glass production.*

*12. Speaking Practice. Discuss the topic "My Native Town (City) " with your partner using such words as*

native(s), citizen, inhabitant, city council, settlement, a fast-growing town, an advantage of living, to be situated (located),

to stretch, to be surrounded by, an ancient city, a relatively young town, a monument to, to be connected to, to be divided into.. .districts, to be noted for, places of interest, a convenient geographical position, a Hero City, to be named after, to be proud of, to grow up around..., to dominate, to be the center of, to have one's own infrastructure, sister city, *ect.*

*13. HOME READING. For further reading on the given topic we recommend texts*

The Properties of Concrete, p.p. 148-149.

**Let's Revise the Grammar**
**(see Grammar Appendix p.p. 226-229; 241-242)**

*14. Convert into INDIRECT SPEECH.*

1. "He is a good architect. Nobody can offer a better project", remarks the boss.
2. "I asked the manager some questions on construction works", said Peter.
3. The engineer pointed out to the workers, "Only the best devices can be used here".
4. The students said, "It is not easy to study such subject as architecture."
5. He said to us, "Don't use this cement. It is not of a good quality".
6. He said to the students, "Almost everyone saw the construction of a building".
7. Our contractor promised, "I'll undertake all my endeavors to supply equipment".
8. My friend asked me, "What natural stones do you know?"
9. The guide told us, "This city is famous for its cement industry".
10. The manager wondered, "Are you specialized in civil engineering?"





*15. Translate the following sentences into English.*

1. Он говорит, что не встречал ничего величественнее, чем египетские пирамиды.
2. Меня спросили, кем я работаю на стройке.
3. Мы спросили начальника, что конкретно мы должны делать.
4. Наши партнеры интересовались, не хотим ли мы построить для них еще один объект.
5. Я не знал, где можно купить новые фильтры для кондиционеров.
6. Мастер сказал, чтобы мы использовали только ламинат для отделки офиса.
7. Он утверждает, что сразу после института работал инженером на стройке.
8. Глава компании пообещал, что они будут поставлять нам только натуральные материалы.

*16. Translate the following sentences into Russian.*

1. Nick says that you are a wonderful carpenter.
2. He never realized that his draft was so brilliant.
3. She asked what kind of tile we were going to use for the roof of the new building.
4. We were warned that the materials would arrive only in June.
5. The professor demanded that the students should come to the exam in time.
6. The lecturer said that the profession of an engineer was as old as civilized life.
7. I wondered if he was a bricklayer or mason and where he worked.
8. He said that marble is a natural stone used for decorative purposes.
9. The manager announced that his staff had very much work that month.
10. They promised that they would have reconstructed this bridge by autumn.

*17. Translate the sentences with the ABSOLUTE PARTICIPLE CONSTRUCTION*

1. The investors financed the building of City Business Center, there being plenty of reasons.
2. The research being easy, the students conduct it themselves.
3. Some of our students prefer to study German, the rest choosing to study Spanish.
4. The observation being over, the students recorded the data.
5. The progress of the reforms being slow, the government is determined to continue supporting the needy countries.
6. It being already late, the workers had to stop laying bricks.
7. The materials being taken next week, we shall be able to build this block of flats in due time.

*18. Translate the sentences with the SUBJECTIVE PARTICIPLE CONSTRUCTION*

1. The building project can be considered over.
2. He may be made our new chief engineer.
3. The inspector was seen examing the construction.
4. The cement was found lying in the first section of the storehouse.
5. The architect could be seen representing his project.
6. The two men were heard arguing.
7. He was left finishing the test.

*READ FOR FUN*

*1. What is your version of the following? Discuss this with yourpartner*

Why do you think birds fly to the south?

*2. Compile as many words as you can with the letters of the word*

*demographics*

Remember: this is not a burden, but a great opportunity to revise your active vocabulary!

# Lesson 8. ASBESTOS

*/. Read and translate the text*

## Asbestos

Asbestos has been known and used as a textile since the earliest times. The first written evidence of asbestos was recorded by Pliny *in the first century A. D.[1]

It is told that one of the Emperors of Rome delighted guests by throwing a tablecloth made of asbestos into fire and then removing it unchanged from the flame. A few centuries later Marco Polo told his friends in Italy about a substance he observed in Siberia. He told that it could be woven into attractive textiles, which did not burn even in direct flame.

Asbestos is one of the strangest of all the naturally occurring fibers. It is a rock, * which has been subjected to unusual treatment during its formation[2]. Asbestos is the only mineral substance used as a textile fiber in the form it is obtained from natural sources. There are many varieties of asbestos rocks but only chrysotile is widely used for textile products. Chrysotile is mined in many countries of the world. The soft, long, white fibers of this mineral can be spun into yarn by the usual processes. Pure asbestos being very difficult to spin, a proportion of cotton fiber is usually added to help to bind the asbestos fibers together. The strangest characteristic of asbestos fibers is their resistance to heat and burning. This property determines the ways in which they are used.

Early uses for asbestos included such articles as handkerchiefs and table coverings. The Chinese used asbestos to make false sleeves, which could be cleaned by putting them in the fire. All the dirt was burned off, leaving the asbestos clean. We know commercial development of the fiber to have started in the 19th century. Asbestos was

used in flameproof clothing of many kinds, for laboratory, industrial and military purposes^

Fabrics made of asbestos have good strength. Today the main applications are those in which non-inflammability is essential such as conveyor belting for hot materials, industrial packings, fireproof clothing, etc. Asbestos is sometimes used with glass fiber in making decorative fabrics for curtains used in hospitals, theatres and other buildings where the public assembles. Some grades of asbestos are used for electrical windings and insulation.

*2. A few explanations to the text.*

1. ...in the first century A. D. — в первом веке нашей эры *(лат.* anno domini)
2. .. .which has been subjected to unusual treatment during its formation.—который подвергся необычному воздействию во время своего образования.

*3. Key vocabulary / expressions*

belt [belt]—*n* пояс
dirt [da: t]—грязь
fiber = fibre ['faiba] —*n* волокно; нить
handkerchief ['has rjkatfif] —*n* носовой платок; косынка
sleeve [sli:v] — *n* рукав
spin [spin]—v (span, spun) прясть
treatment ['tri:tmant] — *n* обращение; обработка; *зд.* воздействие
yarn,[ja:n]—и пряжа, нить

*4. Phonetic drill. Read the words paying attention to the prommciationofthe italisized letters*

[KW] square, squaw, squirrel, queen, require, quarrel, squeeze, question
*ЫI* К[ц]У- guarantee, guard, guess, guest, guerilla, guide, guitar





5. *Find Russian equivalents to the following international words*

| | |
|---|---|
| potential [pa'tenjal] | interview ['inta:vju] |
| geography [CTji'ografi] | economy [ir'konami] |
| agent ['eid^ant] | profession [prэ' feian] |
| university [juni'va:siti] | regional ['rirdjanl] |
| ethics ['e8iks] | period ['piariad] |
| surveyor [sa:'veia] | provider [prэ Vaida] |
| underwriter [Anda'raita] | warrant ['worant] |
| discounter [dis'kaunta] | spelling f'spelirj] |
| marketing ['ma:ketirj] | manager [' maenad3a] |
| traffic ['traefik] | conductor [kan'dAkta] |
| trainer ['treina] | |

*6. Word construction (Different ways to construct the words)*

*6.1. Translate the following words Keeping in mind their prefix pre- meaning до...,* пред..., заранее...

prehistoric, precaution, preheat, prewar, preamble, prearrange, pre-revolutionary, pre-condition, pre-date, preface

*6.2. Translate the following words Keeping in mind their suffix proof- meaning* стойкий, сопротивляющийся, непроницаемый

flameproof, waterproof, bulletproof, fireproof, weatherproof, hackerproof, lossproof, foolproof, shockproof, ageproof.

*That is another way how the same words can be used*
weatherproof = proof against weather
bulletproof = proof against bullets

7. *Translate the sentences paying attention to different meanings of the verb "to build"( build—built — built)*

1.1 would not built on that if I were you.
2. He is not built that same way.
3. They have built in their garden with the wall just recently.
4. We need more place and I would like to build a wing on to our house.
5. Much work has built up over the past years.

*8. Find the following words and word combination in text.*

огнеупорная одежда,
занавес для театра__
открытое пламя____
сопротивление жару и горению,
невоспламеняемость_____

*9. Match the verbs in column A with those in column B.*

| A | B |
|---|---|
| 1.to use | происходить |
| 2. to weave | добывать |
| 3. to burn | прясть |
| 4. to occur | использовать |
| 5. to mine | гореть |
| 6. to spin | прясть |
| 7. to start | начинать |
| 8. to add | добавлять |
| 9. to include | включать |

*10. Complete the sentences.*

1. Fabrics made of asbestos have...
2___one of the Emperors of Rome...
3. Early uses for asbestos included such articles...
4. All the dirt was burned off, leaving...
5. .. .fibers of this mineral can be spun into yarn by the usual processes.

*11. Ask questions so that the sentences below could be answers.*

1. Marco Polo told his friends about the substance that could be woven into attractive textiles.
2. Asbestos was used in flameproof clothing of many kinds for different purposes.
3. The strangest characteristic of asbestos fibres is their resistance to heat and barning.





*12. Find in the text a definition of asbestos and translate it into Russian.*

*13. HOME READING. For further reading on the given topic we recommend Supplementary texts*

1. To the History of Construction, p.p. 146-147.

**Essential Grammar:**
**(see Grammar Appendix p.p. 190-192)**

*14. Analyze the following sentences with the ATTRIBUTIVE CLAUSES and translate them into Russian*

1. Decorative asbestos fabrics are used in the houses where the public assembles.
2. The building materials, which are produced at this factory, are widely used on the city construction sites.
3. One of the most important requirements when we use timber is to see that it is properly dried.
4. This property determines the ways in which they are used.
5. Respect the people who answer to you.
6. What do you do to cut the labour expenses that are connected with the erecting of a house at the construction site?
7. The building of the university where we study is a pre-revolutionary one.
8. In a space heated by radiators, where there is no fan, the air, which comes into contact with the radiators, is heated and made lighter.
9. Many people have some experience that can easily be turned into a business.
10.1 clearly remember the day when we met with you first.
11. The fact that the lime can be slaked was discovered by the Romans.
12. Fabrics that are made of asbestos have good strength.

13. Egyptian pyramids are huge structures that are almost 4,600 years old.
14. The more people who manufacture and trade, the greater the competition.
15. They wish that some of the rules they must follow were not necessary.
16. The "pseudo concrete" was not the concrete people use today.
17. The fact that cement is used widely as a binding material is quite reasonable.
18. Nowadays plastics, which are artificial materials, can be applied to almost every branch of building.

## *15. Translate the sentences with double clauses*

1. Sand is the only material, which is sufficiently cheap, and which will fulfil these requirements.
2. All aggregates, which have sufficient strength and resistance to weathering, and which do not contain harmful impurities may be used for making concrete.
3. Joiner is a man who makes joinery and works mainly at the bench on wood, which has been cut and shaped by the machinists.
4. The word "sand" is applied to any finely divided material, which will not affect the cement or lime and which is not subject to disintegration or decay.
5. Aggregates are defined as a mass of practically inert mineral materials, which form the rock, which is denoted by the general term concrete.

## *16. Make up sentences according to the model.*

Model A: This is the device which our engineer has constructed.
This is the device our engineer has constructed.
1. The technology that the company used in building is up-to-date.
2. I remember the day when you first came in our company.
3. The reason why the roof leaks is quite plain.
4. The specialist that you wanted to hire is in our office.





5. The oldest book that we have sets the principles of building.
6. The subject that they have chosen for the discussion was connected with modern management practices in the construction industry.

Model B: This is the house in which I used to live
This is the house I used to live in.
1. There is an optimum condition of temperature and humidity at which the processing of different materials may be carried out.
2. This is a concept on which our company was built.
3. Kiln is a kind of furnace in which limestone is heated.
4. Foundation is a part of construction on which all the building based.
5. These is a mixture of cement and sound from which we get concrete.
6. He was offered to work with the architect of whom he had heard much before.

*READ FOR FUN*

## *1. Read the text*

### Buying a House: Daydream or Nightmare

I recently heard from my old friend Norman. He called to tell me that he has decided to buy a house. That's very interesting because I'm thinking about buying a house too. Sometimes I sit alone at my desk before work and draw houses. I think I'll call a real estate agent next week, so I can begin to look for a house. Or maybe I'll wait. I'm just not sure.

Norman is a dentist. He wants to have his office in his house. So the house has to be large with two separate entrances. Norman told me that he hasn't been himself lately. He thinks about houses morning, noon and night. He looks at houses with his fiancee in different towns every week. He looks at the prime lending rate every week. Sometimes he heard about houses he liked a lot. He went back to see

it a week later. The owner had already sold it. Another time he saw a beautiful house. It was perfect—the right size, close to the city, near public transportation. It had a huge yard, and it even had a swimming pool. It looked like the house where he was born. His fiancee loved too, and the price was right. He made an offer the next morning so he would not lose the house. But then he had a house inspected. Poor Norman! The house had termites, asbestos in the basement, leaking water pipes, and a broken hot water heater. He was very dissapointed. His йапсйе wanted to give up. Norman wanted to try again. He's been looking for a year.

I wish him good luck.

### *2. Answer the question:*

1. What kind of a house would you like to have?
2. What are your dreams?

### *3. Retell the text*

### *4. Learn the dialogue by heart*

*Construction Manager:* Hallo! Could I speak to Mr. William Jefferson, please? That's the supervisor of the builders' team. 1 would like to discuss some details about the construction of your house in Abby Moth.

*Mr. Jefferson, customer;* Hallo, what's up?

*CM.:* Hallo, Mr. Jefferson. I just wanted to talk over some possible changes in the project of the foundation

, C .What are those?

*CM:* You have ordered to make a concrete foundation. But those concrete beams are too heavy.

CSo?

*CM.:* I suggest that we make it ferro-concrete. It will be better.

*C:* Fine. And could we possibly discuss some details concerning the woodwork?

*CM.:* But we haven't started the earthworks yet, Mr. Jefferson...





C: You know, I'm leaving for USA for a long time, so I won't be able to order some changes later.

*CM.:* Ok, I can come to you with the project plans tomorrow.

C: Thank you. So I'm waiting for you tomorrow at 10 a.m.

CM: See you tomorrow.

*C:* Good-bye then.

# Lesson 9.
# AIR-CONDITIONING

## /. *Read and translate the text*

### Air-conditioning

### I

Air-conditioning is the bringing of air in a building to a desired temperature, purity, and humidity throughout the year to maintain healthy and comfortable atmosphere.

Air-conditioning may be divided into two main sections: *one for the processing of materials[1] in industry; the other for human comfort. It has been found that there is an optimum condition of temperature and humidity at which the processing of different materials may be carried out with the minimum of wastage and the maximum of goods of specification quality. The system is therefore designed to produce air of predetermined temperature and moisture content and to keep it so despite all external influences. Such air is filtered free of foreign material.

Conditioning air for human comfort may also be divided into two main sections — winter and summer. Frequently, the systems installed in office buildings provide control during both seasons. Complete air-conditioning provides the following services.

*First,* filtration of the air both in winter and summer to remove dust.

*Second,* circulation of the air at low velocity and with proper diffusion to prevent draughts and maintain *a uniform temperature and humidity[2] at all parts of the inhabited space.

*Third,* introduction of enough fresh air from the outside atmosphere.

*Fourth,* heating of the air in winter.

*Fifth,* cooling of the air in summer below the outside atmosphere.





*Sixth,* humidifying the air in winter to a relative humidity of at least 20-25 per cent.

*Seventh,* dehumidifying the air in summer to a relative humidity not exceeding 55 per cent.

The basic pieces of equipment are the filters, preheat coils, humidifiers, reheat coils, additional cooling coils, fans and controls. The control of air purity can be achieved in various degrees. As a minimum control some sort of filtering must be done near the entrance of the air-conditioning system. Possibly the most efficient filtering device is the electrostatic precipitator.

Air conditioning for human comfort is employed in both large and small installations, such as theaters, office buildings, department stores, residences, airplanes, railways, cars and submarines.

### П

People are comfortable when they are *neither too cold, nor[3] too warm and when the air about them is neither too dry, nor too damp and is not stuffy or dusty. To bring about these desirable conditions the heating or air-conditioning apparatus must be capable of maintaining the following conditions inside the house, whatever the conditions outside may be.

To avoid stuffiness, the air should be given a certain amount of motion. Under winter conditions this must be sufficient to distribute the heat uniformly throughout the rooms. It must not be too cold at the floor, not too hot at the ceiling. *A stove causes the hot air around it[4] to rise up toward the ceiling and cooler air to flow toward the stove. A radiator acts in this respect like a stove. Warm-air registers bring heated air into a room with a certain motion or velocity which imparts movement to the air already in the room. An outlet for this air should be provided in order to have good ventilation. In summer time much greater air motion is needed, enough to change the air in a room completely from three to ten times per hour. Sometimes a fan is placed in the attic to blow the warm air out and to cause the cooler night air to flow through open windows. When this is done, air in the house can be expected to be changed completely every two or three minutes. When air is brought into a house from outside, heated in a furnace and distributed through all the rooms, it ought to be cleaned by passing it through "filters" before it enters the furnace:

*2. A few explanations to the text.*

1. ...one for the processing of materials — первый для обработки материалов...
2. ... a uniform temperature and humidity — одинаковую температуру и влажность...
3___neither..., nor...—ни...ни...
4. A stove causes the hot air around it... — Сушильная печь заставляет горячий воздух вокруг...

*3. Key vocabulary / expressions*

an amount of [a'maunt]—количество чего-л.
attic [' aetik] — *n* мансарда; чердак;
be capable of ['keipabl] — быть способным
desire [di'zaia] — *n* желание
duct[dAkt]—и проток, канал
exceed [ik' si:d] — v превышать, превосходить
humidity [' hju: 'miditi] — и влажность
inhabit [in' hasbit]—v жить, обитать
moisture [moist Гэ]—*n* влажность
motion [' moujn]—*n* движение
outlet [' autlet] —*n* выпускное или выходное отверстие
precipitator [pri'sipiteita] —*n* осаждатель, ускоритель
purity [' pjusriti] — *n* чистота
stuffy ['sUf] —*a dj* душный
velocity [vi'lositi]—*n* скорость
waste [' weist] — *n* бесполезная трата

*4. Phonetic Test. Read the following words correctly*

stuffy, dust, include, require, must, crude, humidity, build, hundred, molecular, sufficient, adequate, cause, furnace, requite, thousand, truly, evolution.

*5. Word construction (Different ways to construct words)*

*5.1. Translate the words keeping in mind their suffices and prefixes*

humid — humidity — humidify — humidor — dehumidifying —humify





waste—wastage — wasteful—waster—wastrel—wasting
inhabit — inhabitant — inhabitable — inhabitancy — inhabitation

*5.2. Translate the sentences with some odd meaning of the familiar words*

1. Stop hammering at me.
2.1 would like to hammer it home to you that market research is crucial for business.
3. Would you kindly hand me the magazine.
4. She handed the elder woman into a bus.
5. He who hesitates is lost.
6. A teaching load of twelve hours a week seems to be normal for her.
7. They have loaded too much information into the computer recently.

*6. Translate both parts of the text reading firstly how to convert temperature from Fahrenheit scale to Centigrade scale.*

## Measuring Temperature

### I

On the Centigrade scale the * boiling point[1] of water is fixed at 100 (one hundred degrees), its *freezing point[2] is at 0 (zero). The equivalent points on the Fahrenheit scale are at 212 and by 32.

When it is necessary to convert temperature reading from the Fahrenheit scale to the Centigrade, we subtract 32 and multiply by 5/9.

Sometimes scientists use the Absolute Scale in which the temperature is measured in degrees Centigrade from the point at which molecular motion ceases. Absolute zero is -273.1 C.

### П

For adequate heating when it is cooled outside the heating plant, including the necessary ducts, registers, piping, radiators, etc., must

be able to keep all the rooms at 70° Fahrenheit, even if it is 20 or 30 degrees below zero outside.

Notes on **the text:**
1. boiling point—точка кипения
2. freezing point—точка замерзания
3. Fahrenheit [Tcuranhait] scale — шкала, предложенная немецким физиком Фаренгейтом

*8. Speaking practice. Discuss air-conditioning of the house with your partner using the following phrases:*

1. Another important thing is...
2. You must keep in mind that...
3. You avoid this... should...
4... .(this) must be sufficient.
5. What people need most of all...

*9. Speaking Practice. Discuss the topic "My Country" with your partner using such words as*

to occupy, to consist of (to include, to be made up of), to be washed by, to border on, to be famous for, the population of... is about..., total area, to vary (the climate varies), to be of great importance to , to became the craddle of, to be rich in, to date back to, to lie on, to be linked with, to extend out, a highly developed industrial country, to be limited by, to establish, to conquer, to proclaim, to recognize, sovereign, independent, natural resources, authority, density, to be densely peopled, political set-up, a presidential republic.

*10. Home reading. For further reading on the given topic we recommend Supplementary texts*

The Community and Architecture, p.p. 143-144.





**Essential Grammar:**
**(see Grammar Appendix p.p. 233-237)**

*//. Use the required form of the INFINITIVE*

**1**. He seems (to read ) a lot.
2. He seems (to read) now.
3. He seems (to read) all the books in the library.
4. He seems (to read) a lot all his life.
5. She was glad (to help) her friends.
6. She was glad (to help) by her friends.
7. She is always glad (to help) her friends.
8. Can your cell (to use) in another city?
9. We may not (to use) dictionaries at the exams.
10. This question is too complicated (to answer) at once.
11. Can you (to answer) the question?

*12. State the functions of the INFINITIVE in the following sentences and translate them into Russian.*

**1**. The high ceiling is lowered somewhat near the decider wall to make the space a little more intimate.
2. The living room is intentionally designed away from the kitchen and family room to guarantee some adult space.
3. The challenge of working with a narrow lot is to save as many trees as possible and still have portions where the sun shines in.
4. Include penalties when writing a contract for any failure to meet start-up and competition dates.
5. Naturally, you will need to do some research on architectural styles to get additional information.
6. You should work at your English as much as possible.
7. Get to know your competitors over time.
8. To create a quiet port basin and provide safe accommodation for the ships the harbour should be protected from the wind and wave actions by special engineering works if sheltering has not been provided by nature.

9. To avoid stuffiness, the air should be given a certain amount ofmotion.
10. Place a fan in the attic to blow the warm air out and cause the cooler breeze flow through the open windows.
11. The house ought to be cleaned as often as possible.
12. Air motion is necessary to change the air in the room.
13. To carry out the work of levelling the site one must employ the earth-moving machinery.
14. They try to adapt their policies and tactics to meet the new conditions.
15. The type of policy to be followed will be widely discussed in mass media.

*13. Translate the sentences paying attention to modal verbs* ***with*** *PERFECT INFINITIVE.*

1. The idea of such building materials might have been borrowed from the ancient Greeks.
2. It is surprising, therefore, that after the fall of the Roman Empire, so much of the great knowledge should have disappeared so completely.
3. This piece of wood should have been cut and shaped by the machinists.
4. To my mind, we should have done everything to prevent them from becoming our enemy.
5. Their decision might have been caused by circumstances.

***TIME FOR FUN***

*1. Are you sure you remember the words of your active vocabulary? Compile as many words as you can with the letters of the word*

*construction*

# Lesson 10. ARCHITECTURE: ITS FORMS AND FUNCTIONS

*/. Read and translate the text*

## Architecture: Its Forms and Functions

Architecture is the art or science of planning, building and structures. Without consideration of structural principles, materials, social and economic requirements a building cannot take form. But without aesthetical quality inherent in its form *a building cannot be considered as a work of architecture[1] as well.

From the very beginning of construction in human history lots of architectural skills, systems and theories have been evolved for the construction of the buildings, which have housed nations and generations of people in any kind of their activity. Writings on architecture are almost as old as writing itself. Books on the theory of architecture, on the art of buildings, and on the aesthetical view of buildings exist in great number. The oldest book, which sets forth the principles, upon which buildings should be designed and which aim is to guide the architect, is the work of Markus Vitruvius Pollio written *in the first century B. C.[2]

Architecture is an art. Its nowadays expression should be creative and consequently new. The heritage of the past cannot be ignored, but it must be expressed in modern terms. There exists an evident paradox in the coexistence of change and survival in every period of human civilisation. This paradox of change and repetition is clearly illustrated in any architectural style.

Architecture is also the style or manner of building in a particular country or period of history. There are widely known examples of Gothic architecture all round the globe. During many centuries mankind admires the architecture of ancient Greece or Roman Empire as well.

Nearly two thousand years ago the Roman architect Vitruvius listed three basic factors in architecture. They are convenience, strength and beauty. These three factors have been present and are always interrelated in the best constructions till the 21st century. *No true architect could think of any of them[3] without almost automatically considering the other two as well. Thus, architectural design entails not only the necessity to study various solutions for convenience, structure, and appearance as three separate processes. Architectural design also includes the necessity to keep in mind the constant interaction of these factors. It's impossible for an architect first plan a building from the point of view of convenience, and then make the design of a strong construction around his plan to shelter it. Then, as a final touch, try to adjust and decorate the whole to make it pretty. Any design evolving from such kind of work will produce only a confused, incoherent, and unsatisfactory building. When speaking about any truly great building we cannot but say that every element in it has a triple implication or significance.

This triple nature of architectural design is one of the reasons why architecture is a difficult art. *It needs some unique type of imagination[4] as well as long years of training and experience to make a designer capable of getting requite in the light of these three factors—use, construction, and aesthetic effect—simultaneously. The designer must have a good knowledge as of engineering so of building materials. This knowledge will enable him to create economically strong and practical construction. The designer, in addition, must possess the creative imagination, which will enable him to integrate the plan and the construction into the harmonious whole. The architect's feeling of satisfaction in achieving such integration is one of his/her (their) greatest rewards.

## *2. A few explanations to the text*

1... .a building cannot be considered as a work of architecture. —здание не может считаться архитектурным произведением.
2... .in the first century B. C. (before Christ) — . . .в первом веке до нашей эры (до рождества Христова).
3. No true architect could think of any of them... — Ни один





настоящий архитектор не смог бы думать только об одном из них...
4. It needs some unique type of imagination... — Она (архитектура) требует своеобразного видения...

## *3. Key vocabulary / expressions*

entail [in'teil] — v вызывать
evolve [i'volv]—v развиваться
incoherent [inkou'hiarant] — *adj* непоследовательный, несвязный
inherent [in' Ыэгэпг] — *adj* присущий, неотъемлемый
heritage ['heritidj] — *n* наследство
requite [ri' kwait] — *n* вознаграждение
triple f'traipl]—*adj* тройной; v утраивать

## *4. Phonetic Test. Read the following words correctly*

pseudo-concrete, honour, chancellor, quote, fluent, psychology, champagne, bath, asphalt, psalm, guide, chronicles, chef, technology, basic, architecture, guestion.

## 5. *Word construction*

### *5.1. Translate the words keeping in mind their suffixes and prefixes*

necessary — necessitate — necessity
evolve — evolutive — evolution—evolutionist — evolutionary — evolutional
architect — architectonic — architectonics — architectural — architecture

### *5.2. Memorise the words with the same stem*

stuff—' stuffy —' stuffiness
intro' duce—intro' duction—intro 'ductory
' person—'personal—' personage—personality—per' sonify —' personable—' personally—personofi' cation—' personate

*6. General understanding. Answer the questions to the text*

1. What is architecture?
2. What is the oldest book to set forth the principles of construction?
3. How should mankind deal with the heritage of the past?
4. What three basic factors in architecture were listed nearly two thousand years ago?
5. Why architecture is a difficult art?
6. What can we say about any truly great building?
7. What integration must an architect achieve?

*7. Let* Is *talk about architecture.*

1. What famous Russian/English architectors do you know?
2. Among Seven Wonders of the World there were some famous buildings and constructions. Do you know them?
3. What famous architectural complexes in Russia do you know?
4. What do you think about your city/town architecture?

*8. Home reading. For further reading on the given topic we recommend Supplementary Texts*

Biohistory. p.p. 149-156.

*9. Translate the sentences with some odd meaning of the familiar words*

1.1 am on the run the whole day with these documents.
2. The book has a considerable run.
3. The lease runs for four years.
4. Do you know the proverb: cut the coat according to the cloth?
5. The trip made a pleasant break.
6. Just give her a break!
7. They break the vase into small pieces.
8. The building houses the City Counsil.
9. He is considered to be the best mind of our time.
10. Mind your own business!





## Essential Grammar:
## (see Grammar Appendix p.p. 192-196)

*10. Make up the complex sentences with ADVERBIAL CLAUSES and translate the resulting sentences.*

1. You can't reach your market.
Your business will fail.(if)
2. Builders are attracted to imported goods.
There is always a guarantee, (because)
3. People are comfortable.
They are neither too cold, nor too warm, (when)
4. All works are completed and the project is ready for the commissioning.
The contractor notifies the engineer with the message, (as soon as)
5. The definition "civil engineering" dates back only two centuries.
The profession of civil engineer is as old as civilized life, (while)
6.1 told about the development of different branches of engineering.
You might understand clearly what civil engineering constitutes nowadays, (in order that)
7. Parquet is a very expensive material.
Many people prefer to use it in their flats, (though)
8. You have finished your work.
You may go home, (since)
9. They spent a great amount of money for the building.
It were a real palace, (as if)
10. The air-conditioning system are installed in the buildings.
Filtration of the air introduction of fresh air are needed, (where)

## CUMMULATIVE REVIEW TEST

**1.1** could do the work now but I'd rather put it off till the weekend.
2. There's a nice sunset, it ought to be a fine day tomorrow.
3. How much time should I spend doing this job?
4.1 hardly need to say how much I enjoyed the holiday.

5. They haven't widened this road yet, but I dare say they will comeback..
6. We didn't dare to ask if we could have a holiday.
7.1 hardly needed to be told that.
8. How dare you say such a thing?
9.1 never dared to reach the moon.
10. The investors financed the building of City Business Center there being plenty of reasons.
11. We found him looking through a Home Plan Ideas magazine.
12.1 want the construction be finished by May.
13.1 watch them installing the new French window.

*TIME FOR FUN*

*1. Are you sure you remember the words of your active vocabulary? Compile as many words as you can with the letters of the word*

*environment*

*2. Check yourself Guess the words. Fill in the blanks with the proper letters.*

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| *i* | *n* | | | | *e* | | *t* | | | |
| *i* | *n* | | *e* | | | | *t* | | | |
| *i* | *n* | | | | *e* | | *e* | | *t* | |
| *i* | *m* | | | *i* | | | *t* | | | *n* |

*3. Read and try to retell the anecdote.*

One day Mr. Bent received a picture from his friend who was a painter. Mr. Bent was very pleased with it as the painter told him that it was the most wonderful picture he had ever painted. However, when Mr. Bent wanted to hang it up he could not decide which was the top and which was bottom.





So Mr. Bent thought of a plan. He hung the picture in the dining-room and wrote a letter to the painter in which he said he looked forward to seeing him in his house for dinner. The painter promised to come and see him. The next day the painter came to join Mr. Bent for dinner. There was a large choice of dishes and wines, and the painter enjoyed the dinner very much. They started with gin and tonic. When the painter was eating soup, he looked at the picture few times. When he was eating roast-beef, he looked at the picture with surprise. Before he began drinking coffee, he walked up to the picture. The painter looked at the picture for some time and understood that the picture was hanging upside down. "Why, my friend," he said, "my picture is upside down". "Is it?" said Mr. Bent. "But why did it take you so long to find it out? You have painted it".

uoireuiSeun '}иэаэцоош 'ajwSsju; 'цюлэщщ :jxa oi *teyi*

# Lesson 11.
# WHAT IS MEANT BY "BIOCLIMATIC ARCHITECTURE"

/. *Read and translate the text*

## What Is Meant by "Bioclimatic Architecture"

Bioclimatic architecture is a way of designing buildings and manipulating the environment within buildings by working with natural forces around the building rather than against them. Thus it concerns itself with climate as a major contextual generator, and with benign environments using minimal energy as its target. Bioclimatic architecture aims to protect and enhance the environment and life. It is developing on many different levels from rethinking basic concepts about our need for shelter and the function of the "city" in our lives to developing recycled or sustainable building materials.

The impact of traditional building on the environment and natural resources is enormous. However, the ideal of designing and building structures that are environmentally friendly has become fairly widespread throughout the community of architects and builders in developed nations. In many areas there is the necessity of complying with new regulations and standards aimed at protecting the environment. In addition, there are an increasing number of incentives for putting up buildings with more efficient energy consumption and that reduces the negative impacts on natural resources by using recycled or sustainable materials. While these vary around the world, there is awareness that our need for shelter must not jeopardize the environment.

There is growing interest in "green" building practices, which offer an opportunity to create environmentally sound and resource-efficient buildings by using an integrated approach to design.





"Green" buildings promote resource conservation through energy efficiency, renewable energy, and water conservation features. They take into consideration the environmental impact of the building and minimize waste. Other goals are to create a healthy and comfortable environment, reduce operation and maintenance costs, and address issues such as historical preservation, access to public transportation and other community infrastructure systems. The entire life cycle of the building and its components is considered, as well as the economic and environmental impact and performance.

*As public awareness of environmental issues increases[1], the construction developers are also beginning to see that "green building" can be profitable and a selling point. Market surveys are showing that a surprising number of potential buyers are interested and will pay the higher prices for a home that is environmentally friendly. In the last few years there has been much talk concerning environmentally responsible architecture, that is, architecture respectful of the earth's resources and its natural beauty. Unfortunately, many of the architects and designers *who profess interest in the concept of sustainable architecture[2] do not practice it in their own work for whatever reason, be it their client's lack of interest or their own lack of conviction. In fact, most architects ignore the issue altogether, preferring to regard architecture as fashion. This is a terribly irresponsible view, because in terms of energy use and visual pollution, ""buildings have had an increasingly severe and damaging impact on the environment,[3] this makes the issue of sustainable architecture not only an important consideration but also a necessary one. As for a building philosophy for national parks, which were created to conserve nature for future generations, it seems that sustainable architecture, or "integrated bioclimatic architecture", is the only logical and responsible approach.

What is integrated bioclimatic architecture? It is the architecture that arises out of the landscape, with the site determining the orientation and construction of a building, not just aesthetically, but also mechanically, determining its heating, cooling, and lighting too. Thus, it is an architecture that respects nature and its resources and provides its occupants with the most comfortable and pleasing environment possible. However, this architectural approach need not be a restrictive one for imaginative practitioners. As integrated bioclimatic architecture encompasses examples of vernacular archi-

tecture, like the typical "white stucco Mediterranean fishing village", as well as mimetic architecture, which draws on the materials, textures, even the plants of the surrounding landscape for its inspiration. Indeed, good integrated bioclimatic architecture should exist in harmony with the site.

*2. A few explanations to the text*

1. As public awareness of environmental issues increases,—По мере того как растет осведомленность общественности по вопросам окружающей среды...
2… .who profess interest in the concept of sustainable architecture — которые открыто интересуются концепцией поддерживающей архитектуры
3. ...buildings have had an increasingly severe and damaging impact on the environment — здания оказывают все более разрушающее воздействие на окружающую среду

*3. Key vocabulary /expressions*

benign [bi'nain] —*adj* благотворный; плодоносная (почва)
comfortable [' kAmfstabl] — *adj* уютный, удобный
comply [кэш' plai]—v исполнять ( *просьбу, приказ*—with )
conviction [kan'vikjn]—и убеждение, убежденность
enhance [in'ha:ns] — v усиливать, повышать
have an impact [' impaekt]—оказывать влияние / воздействие
incentive [in'sentiv] —*n* побуждение, стимул
jeopardize ['djepadaiz]—v угрожать, подвергать опасности
mimetic [mi'metik]—*adj* подражательный
promote [pra'mout]—v способствовать, продвигать
restrict [ri'strikt]—v ограничивать
stucco [sUkau] —и штукатурка; v штукатурить
vernacular [vs'naskjub]—*adj* национальный; местный

*4. Phonetic Test. Read the words correctly.*

kind, moisture, comfort, speciality, intoroduction, velocity, circulation, wastage, desire, summer, installation, intensively, whether, substantial, measure, wild.





*5. Word construction (Different ways of how to construct words)*

5. ITranslate the following words keeping in mind the meaning of prefix re-
rethink, reheat, refuel, reread, reform, restructure, remake, refocus, re-establish, re-examination, recycling, renew.

5. 2 Do you know the meaning of the following words?
bio-diplomacy, bio-organization, bio-education, bio-history, bio-archaeology

*6. Speak on the usage of the words mentioned above. Discuss with your partner such* bio notions as

bio- architecture, sustainable architecture

*7. Find in the text all synonyms to the phrase "green building".*

*8. Find Russian equivalents:*

1. environmentally friendly_____
2. bioclimatic architecture_____
3. more efficient energy consumption_____
4. to promote resource conservation_____
5. an irresponsible view_____,_____
6. to exist in harmony with the site or nature_____
7. public awareness of environmental issues_____
8. resource-efficient buildings _____
9. the environmental impact of the building_____

*9. Translate from Russian into English*

арка, поддерживаемая колоннами_____
создание здоровой окружающей среды_____
плодоносная почва_____

разрушающее воздействие_____
пересмотр основных взглядов(понятий)_____
строительство, запланированное в этом районе_____
повторное использование материалов_____
возобновляемые ресурсы_____
развитые страны_____
отсутствие убежденности_____

*10. General Understanding. Answer the questions to the text*

1. What is bioclimatic architecture?
2. The impact of traditional building on the environment and natural resources is not enormous, is it?
3. Why is there growing interest in "Green" building practices?
4. What makes the construction developers see that "green" building can be profitable?
5. Do most architects regard architecture as fashion?
6. What is integrated bioclimatic architecture?
7. Explain the words "vernacular architecture".
8. Good integrated bioclimatic architecture should exist in harmony with the site, shouldn't it?

*//. Read the text and tell what are the main concerns of environmentalists. Discuss them with your partner*

Enviromentalism is an organized movement of concerned citizens and government to protect and enhance people's living enviroment, that is, to prevent the environment from being spoilt.

Enviromentalists are the public concerned with strip mining, forest depletion, factory smoke, billboards; with the loss of recreational opportunity; and with the increase in health problems caused by bad air, water, and chemically sprayed food. Environmentalist is a person who tries to prevent the enviroment from being spoilt. Enviromentalists are not against marketing and consumption; they simply want businesses and consumers to operate on more ecological principles. They think the goal of the marketing system should be to maximize life quality of the enviroment. They require business to





invest in antipollution device, taxing nonreturnable bottles, and banning high—phosphate detergents. These measures are as necessary to induce businesses abd consumers to act in environmentally sound ways.

*12. Check yourself. Guess the words. Fill in the blanks with the proper letters.*

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| e | | | | | I | | | |
| e | | | I | | | | | |
| e | | | | | | t | | |
| e | | | i | | | | e | t |

**Essential Grammar:**
**(see Grammar Appendix p.p. 229-232)**

*13. Translate the following sentences into Russian using the SUBJUNCTIVE MOOD.*

**1.** The idea of "pseudo concrete" might have been borrowed from the ancient Greeks.
2. It is curious that the Mexican Indians should have employed concrete in their buildings.
3. But for timber piles, the Romans couldn't have built roads.
4. He insisted that the construction works should be continued.
5.1 wish the house would be protected by several coats of paint.
6. It is necessary that you protect the thumb and the fingers with leather pads.
7. It is time your company created a new turnkey project.
8. This laminated floor looks as if it were parquet.
9. The plan was that the specialists should provide air-conditioning of the building.
10. Within what period of time would you be able to finish this pavilion?

11. As a rule the contractor supplies spare parts so that the project could normally operate during the maintenance guarantee.

12. The heating or air-conditioning apparatus must be capable of maintaining the following conditions inside the house, whatever the conditions outside may be.

## *14. Complete the sentences*

A

1. They would have gone long ago ...
2.1 am sure they were pressed ...
1. But for Marcus Porcius Cato ...
2.1 wish...
3. It is required ...
4. The suggestion was ...

B

1... .that the materials designed for modern buildings be practical and cheap.
*2*.... the ancient Romans shouldn't have learnt to bake lime in the kilns.
3.... but we insisted on their finishing the work.
4. ... that the vertical "blinds" on the facade of the building were mobile.
5.... you had used marble for decoration of my house.
*6*.... otherwise they would have prepared a better draft.

## *15. Translate the sentences into English.*

1. Хорошо, что ты был дома. Как бы я сделала без тебя ремонт в квартире?
2. Жаль, что вы не обратили внимание на предупреждение инспектора.
3. Ее требование состояло в том, чтобы ей заплатили за дополнительную работу.
4. Не может быть, чтобы эта компания строила такие старомодные дома.





5. Я потребовал, чтобы они показали мне проект дома.
6. Ах, если бы вы видели этот замечательный памятник архитектуры!
7. В этой комнате так холодно, как будто здесь забыли поставить батарею.
8. Нам бы хотелось, чтобы вы использовали дерево, а не фанеру при отделке нашей квартиры.
9. Мы прочитаем эту статью, чтобы мы знали о современных строительных технологиях.

## CUMMULATIVE REVIEW TEST

1. Life comes from and depends on nature.
2. The environment has been drastically changed under the influence of our developing civilization.
3. Protection of the nature is to be observed in every human society or culture.
4. Absence of rainwater can be replaced by the use of irrigation from rivers.
5. The combination of need and opportunity has led to high technological and political achievements.
6. In Central Europe, the Danube has always been a cultural liaison between distant nations.
7. The environmental protection brings together social, economic, moral and political considerations.
8. The challenge of working with a narrow lot is to save as many trees as possible and still have portions where the sun shines in.
9. Ever since the human being appeared on Earth, he has been observing, deifying, thinking, understanding, controlling and dominating the world into which he was born.
10. Myths concerned with water are widespread in various cultures, testifying this major reality of human life.
11. The humidity has begun to produce its own food through the planting of crops.
12. Account should be taken of the worst conditions of air temperature and humidity likely to arise.

13. It's not enough to build a better mousetrap, you have to build a better mousetrap company.
14. You ought to know the names of the scientists who have contributed much to the development of your profession.

***TIME FOR FUN***

***Express your opinion on the following***

1. Money couldn't buy friends, but you got a better class of enemy.

Spike Milligan

2. If you can actually count your money, then you are not realy a rich man.

J.Paul Getty

3. You can be young without money but you can't be old without it.

Tennessee Williams

4. Ambition is the last refuge of the failure.

Oscar Wilde

5. People think that at the top there isn't much room. They tend to think of it as an Everest. My message is that there is tons of room at the top.

Margaret Thatcher

juauiucuiAua ']иэр;лэ 'эл!олэ '[lujua : п ' ˣ ³ °1 ^^Я

# Lesson 12.
# NEW TRENDS IN URBAN MANAGEMENT

## *1. Read and translate the text*

### New Trends in Urban Management

The environmental protection brings together social, economic, moral and political considerations. Urban management must take these considerations into account and incorporate the following principles:

***Environmental limits.*** Uncertainty about the environmental threshold of the earth's carrying capacity requires the adoption of the precautionary principle and calls for demanding management.

***Environmental*** *efficiency*. Reducing the use of natural resources, increasing durability and closing resource loops will contribute to long-range environmentally compatible urban management.

*Welfare efficiency and equity*. Multiple use and social and economic diversity, as well as a fair distribution of natural resources are key elements to be considered in urban planning.

*To reconcile continueing development with environmental limits[1] mankind must choose certain types of development rather than others. Efficiency has meanings beyond maximizing the economic output of each human being. Human benefit is not necessarily identical to utility as measured by neo-classical economics. Quantity of goods should be replaced with quality of life. Environmental protection is closely connected to social equity.

**Natural building materials**

Natural building has emerged as a response to an increasing concern for our built environment. Natural materials *can provide an alternative[2] to toxic substances which have led to widespread environmental illness.. While interest has surged in the industrialised West, the ancient roots of natural building are being lost in many

traditional areas. Ironically, builders in the industrialised countries are now turning to these very cultures for solutions to their building problems. It is to be hoped that increased interest and research into vernacular building systems will increase respect for these timeless ideas in their native lands, and through diligent efforts by a number of people, many of these techniques are indeed being revived, studied and implemented throughout the world.

*As natural building and design is still in its infancy[3], the state of the art is in constant flux as practitioners and techniques, hitherto isolated, arc identified and brought into partnership with others. Most popular natural building techniques and materials include: adobe, bamboo, compressed earth, earthen floors, light straw-clay, natural fibres, living roofs, natural plasters and finishes, paper blocks, rammed earth, straw bale construction, thatch. *wattle and daub[4] and wood.

Many of the European city problems could be resolved by paying greater attention to the environment. Architecture and urban planning based on environmental preservation are the only option for maintaining quality of life and preventing lasting environmental damage. Pollution reduction, waste minimisation and energy conservation can be furthered through environmentally friendly urban design and construction. Awareness of these issues and information on possible opportunities existing worldwide are vital to the development of new possibilities and new scopes in restructuring urban and agricultural areas, as well as human settlements in general.

Bio-architecture links the appreciation of the environment and biodiversity with urban design and planning. Bio-architecture also promotes the use of materials and techniques, which are environmentally sound, culturally sensitive and reliant on local resources and skills. A "Biopolis" functions as a model for the harmonious co-evolution of humanity with the bio-environment. It is based on the application of clean energy sources (solar, wind, hydrogen, etc.), cleaner production and environmentally friendly materials, and protection of bios aims at creating a self-sufficient, aesthetically pleasing urban environment with an active participation of every member of society in the conservation of nature.





## *2. A few explanations to the text*

1. To reconcile continueing development with environmental limits — Чтобы совместить непрерывное развитие с возможностями окружающей среды.
2.... can provide an alternative — ... могут стать алтернативой
3. As natural building and design is still in its infancy... — так ка строительство с применением природных материалов и дизайн все еще в зачаточном состоянии...
4. ...wattle and daub — строение, сплетенное из прутьев, камыша или соломы и обмазанное глиной

## *3. Key vocabulary / expressions*

adobe [э' daub] — саман, кирпич воздушной сушки
bale [beil] — v увязывать в кипы, укладывать
cohesion [кэиЫ:ззп] — и связь; сплоченность
diligent ['dilid33nt] — *adj* прилежный, старательный
equity fekwiti] — *n* справедливость, беспристрастность
flux [fkks] — *n* 1. течение, поток; 2. постоянное движение
further [Тэ:3з] — v содействовать, способствовать ~ through
hitherto ['ЫЗэШ] — *conj* до сих пор
loop [lu:p] — *n* петля
output ['autput] — *n* продукция, выпуск; *мех.* производительность
reconcile [rikan' sail] — v примирять, улаживать *(ссору, спор)*
surge [sa:d3] — v возникать
theshold ['Grefhould] — *n* порог, преддверие

## *4. General Understanding. Ansyver the questions to the text.*

1. How can you explain the notion "vernacular architecture".
2. What principles must urban management incorporate?
3. What should replace quality of goods?
4. Give your understanding of the word "Biopolis".
5. Do you know the geographical regions where natural building materials are widely used?

*5. Word construction*

**5, 1 Translate the following words keeping in mind the meaning of prefix semi** — *полу-*

semi-manufactured, semi-detached, semi-basement, semifinal, semiconductor, semicircle, semi-automatic, semi-conscious, semiprecious.

**5. 2 Translate the words having in mind that the stem "herb" means "трава":**
herb—herbaceous—herbage—herbal—herbalist—herbaria — herbarium — herbicide — herbivorous — herbogize

*6. Find Russian equivalents:*

take into account_____
the adoption of the precautionary principle_____
neo-classical economics_____
be still in one's infancy_____
straw bale construction_____
living roofs_____
long-range environmentally compatible urban management_____

*7. What environmentally friendly building materials do you know? List them.*

*8. What clean energy sources do you know?How are they used or can be used by mankind?*

*9. Speaking Practice.*

***9.1. What** do you **think of the following? Discuss this statement** with your partner.*

Quantity of goods should be replaced with quality of life.





*9.2. Read the text and discuss with your partner how **the** issues of **it** are implementing **in** your city*

In Europe, the European Commission's Green Paper on the urban environment of the world, the Sustainable Cities Report, shows an integrated approach to urban problems encompassing social, economic, and environmental issues. The Systematic Cities project, serve as encouraging, and assisting cities and towns to establish and implement local Agenda 21 or similar sustainabihty plans through policy reports, exchange of experience, networking and dissemination of good practices cases. In the specific context of environmental policy, the EU is now adopting a more bottom-up approach. Heller implementation in a partnership approach and the use of alternative instruments in environmental policy, are priorities where the urban dimension plays an important role. The "greening" of the Structural Funds has also become a central concern, as explained in the Communication on Cohesion and Environment.

What do you know about local Agenda 21 ?

*10. SPEAKING PRACTICE. Discuss the topic "My Future Profession " with your partner using such words as*

ambition, occupation, job, to make one's choice, to succeed in, qualified, skilled, many roads are opened, to make up one's mind, to apply for, to serve the interest of, one's future speciality, to take a special living, to commit an error, the duty of... is to'…, to start a career, to start training, to be one's chief interest, to have a try, to give a plenty of opportunities, social importance, one's final choice, to be well aware of the fact that:.., a matter of future, prestige and wealth, to discuss professional matters, to encourage, motivation, *etc.*

*11. HOME READING. For further reading on the given topic we recommend Supplementary texts*

1. People Are the Heart of Every Business, p.p. 159-163.
2. On Management in Russia, p.p. 163-164.

**Essential Grammar:**
(see **Grammar Appendix p.p. 196-199)**

*12. Translate the following CONDITIONAL SENTENCESinto Russian.*

1. If a traditional construction manager proves too expensive for your project, you will be able to negotiate with a small general constructor to provide these same services.
2. If a company produced work of a quality that would satisfy customers, then a continuous flow of work to the company would follow.
3. If new management techniques are not considered and adopted, there will be a loss in competitive advantage.
4. If they had taken into consideration the properties of these materials, they should have been changed the draft.
5. If the company expanded, it would acquire in engineering, construction and civil works a high level of expertise.
6. If I were you, I would constructed the project on a prime site on Victoria Island.
7. Operational acceptance of the project will take place if the guarantees have met.
8. Had he been a skilled engineer, he would continue building
• of the theatre.
9. Had we more investments, we could continue building of the theatre.
10. Were I in your place I wouldn't use granite for decorating the facade of the building.

*13. Translate the sentences into English using the different types of the CONDITIONALS.*

1. Если вы пришлете кирпич, мы закончим строительство объекта в этом месяце.
Если бы вы прислали кирпич в следующем месяце, мы бы закончили строительство объекта.





Если бы вы прислали кирпич в прошлом месяце, мы бы уже закончили строительство объекта.

2. Если вы не будете нам мешать, мы закончим работу в срок.
Если бы вы не мешали нам сейчас, мы бы закончили работу в срок.
Если бы вы не мешали нам вчера, мы бы закончили работу в срок.

3. Конструкция будет надежнее, если вы используете этот материал.
Конструкция была бы надежнее, если бы вы использовали этот материал. (Используйте его.)
Конструкция была бы надежнее, если бы вы использовали этот материал.(Но вы не использовали его.)

*14. Make sentences and write sentence chains.*

Model: If... hadn't done..... wouldn't have done.

1. The ancient Egyptians discovered how to cut stone -»constructed stone buildings -» erected huge pyramids -> became famous throughout the world.

2. The workers dug the excavation for the basement. -> The excavator bucket suddenly stopped. -»They saw many construction fragments, -> The scientists found out an ancient town.

*15. Read the situation and find the conditional structure.*

Before Mr. Harris bought the house he should have called in a surveyor. Now he realizes what a big mistake he made. Cracks have begun to appear in the walls and the roof leaks. If Mr. Harris had consulted a surveyor first, he would never have bought the house.

*16. Give the Russian equivalents of the proverbs*

1. If you run after two hares, you'll catch none.
2. If the sky falls, we shall catch larks.
3. If there were no clouds, we should not enjoy the sun.
4. If it were not for hope, the heart would break.
5. If my aunt had been a man, she'd have been my uncle.

**CUMULATIVE REVIEW TEST**

*17. Translate the sentences with odd meaning of the familiar words*

**1**. My joke was wasted upon him.
2. The documents worked out were fit for waste-paper-basket.
3. Do decision at the top get effectively trsanslatedinto actions by others?
4. Clear lines of authority are vital in any organization.
5. Most managers determine their jobs in terms of the tasks to be done rather than the methods to be used.
6. Managing people is far too important to be left to chance.
7. The book I was looking for was staring me in the face.
8. A narrative Executive Summary is useful for businesses that break new grounds.
9. Venture capitalist is an individual or firm who invests money in new enterprises.
10. It's a good idea to keep your first-aid kit handy when you are on holiday.
11. Today Munster's merchant tradition is the best reflected in the busy pedestrian precints and shopping streets.
12. Experts know that most fine pearls will have been housed in an oyster at least two or three years.
13. City history should be presented against the background of general country history.

# Lesson 13.
# A FEW TIPS OF MARKETING IN GENERAL

*1. Read and translate the text*

## A Few Tips of Marketing in General

### I

It is not enough to have a great idea or new building technique as the basis of your construction business; you must also have a market that is sufficiently large, accessible, and responsive. *If you can't reach your market[1], or it isn't ready for you, your business will fail.

*Consider the automatic teller machine (ATM)[2] now seen on virtually every street corner. It was invented more than 10 years before it became popular, but the company that initially marketed the ATM was unsuccessful — people weren't yet willing to trust their banking to machines. Market readiness is one of the most difficult and most unpredictable aspects to measure when examining your market. That is why companies spend substantial amounts of money on market research before launching a product.

Even if you are not creating an entirely new product, service or technology, you should attempt to determine if your market is ready for you. For instance, if you are opening a flower shop in a neighborhood where none currently exists, what indications are there that the neighborhood residents are interested in buying flowers? Do they currently purchase flowers at a nearby supermarket? Does the national demographic data on flower purchasers coincide with neighborhood demographics? Perhaps you should conduct a survey of the neighborhood's residents, asking about their flower-buying habits and preferences.

You may not have the funds to undertake extensive market research, but even a small amount of analysis can help you gauge the

receptivity of a particular market to your idea.

In addition to market readiness, key market factors will influence your choice of marketing strategy and help you make realistic financial projections. When gathering information for your business plan, spend considerable time learning about your market.

The more thoroughly you understand the various factors that affect your market, the more likely you are to succeed.

Once you have clarified what you want to tell customers about your construction company, you must describe how you disseminate that information.

How do you reach potential customers? Do you advertise? If so, where? Do you send *direct mail?[3] If so, to what mailing lists? Do you participate in trade shows? If so, which ones and how frequently?

Since every marketing vehicle costs money, and money is always limited, carefully plan how you intend to spend your marketing dollars. In devising your overall marketing program, be sure you look for:

*Fit.* Your marketing vehicles must reach your actual target customer and be appropriate to your image. /

*Mix.* Use more than one method so customers get exposure to you from a number of sources.

*Repetition.* It takes many exposures before a customer becomes aware of a message.

*Affordability*.

## II

## Possible Marketing Vehicles

Often the best marketing vehicles are not the most obvious or the most expensive. A large ad in a specialty publication may prove far more effective and less expensive than a small one in a general newspaper.

A well-stocked public library can be an excellent source of marketing information.

To find information on trade shows, refer to books, such as the Trade Shows and Professional Exhibits Directory, Trade Show and Exhibit Schedule, or Trade Show Week Data Book. Some of the marketing vehicles you may choose include:

— *Brochures.* Leaflets, flyers, or other descriptive circulars; these are particularly useful for service businesses.





— *Print media.* Newspapers, magazines, and specialty publications.

— *Broadcast media.* Radio can be targeted to specific markets; television can be expensive, especially on network stations.

—*Advertising Specialties.* Items imprinted with the company name given to custo-mers (i.e. giveaways), *ex.* calendars, caps, desk sets, and gifts.

— *Direct Mail.* Flyers, catalogues, brochures, and coupons.

— *Public Relations.* Free feature and news articles in the media and other publicity, usually secured by public relations specialists.

*— *Sampling*[4]. Distribution of free product samples, or coupons entitling recipients to free or discounted samples of your product or service.

— *Informal Marketing/Networking.* Activities such as joining organizations, public speaking, or attending conferences.

### *2. A few explanations to the text*

1. If you can't reach your market...— если вы не можете проникнуть на свой рынок...
2. Consider the automatic teller machine (ATM)...— Рассмотрим на примере банкомата...
3... .direct mail — адресная рассылка рекламы
4. Sampling—Раздача торговых образцов

### *3. Key vocabulary I expressions*

affordability [3'fo:d3biliti] —*n* возможность, допустимость; возможность по средствам
become aware [э'wes] of smth—ознакомиться с чем-нибудь
dissiminate [di' semineit] — v распространять
entire [in'taia] —*adj* полный, весь; целый, сплошной
exposure [iks'p3U33] — *n* выставление, выставка, подвергание *(риску)*
gauge [geid3 ] — v измерять
launch [lo:ntf] — v выпускать(тоея^)
predict — v предсказывать
trust—v доверять

***4. Speaking Practice. Read and speak on the problem raised by a practitioner***

"The main thing is to keep going back and talking to the people who actually use what you are making. See if what you're making is truly helpful to your customers".

*Larry Leigon President,*
*Aerial Vineyards*

*5. Read the definition of the word "marketing" and translate it into Russian*

The origin of this word is the Latin word *"mercuri"* meaning *"to track and barter "*. Marketing, therefore, is made up, on the one hand, of such physical activity as transporting, storing, and selling goods, and, on the other hand, of a series of decisions that must be reached by any organisation undertaking any part of the process of moving goods from the producer to the customer. It's also necessary to have "a hot line" for customer inquiries and complaints to facilitate from the market to the producer.

***What** do you know about marketing in your speciality?*
***What** is marketing to your mind?*

*6. That's an example of how to advertise one's construction business*

*If something out of the blue happened to your house,*
*could you find a **contractor** to fix it?*
*Is there anyone to offer a three-year workmanship **guarantee?***
*An Allsta te A gen t could help you.*
*Being **in good hands** is the only place to be.*





*7. All the words in the box form partnership with the word "market".*

Decide if each word goes before or after the word: "market" and enter it in the table.

| | |
|---|---|
| developins<br>domestic<br>down<br>expandine<br>forces<br>new<br>overseas<br>niche<br>leader | place<br>price |
| shrinkine | research<br>sector<br>share<br>survev<br>up<br>mass<br>established<br>tareet |

7. *HOME READING. For further reading on the given topic we recommend Supplementary text*

Marketing and Advertising, p.p. 172-173.

## CUMULATIVE REVIEW TEST

*8. Read and translate the following sentences explaining the functions of words ending in -ing*

**1**. Proper relation between theory and practice must be observed in training young specialists.
2. The students get their practical training while they are working at different firms. 3. From the very beginning the students are made responsible for their work.
4. Such an arrangement is leading to better understanding of a speciality, namely, to its application in daily practice.
5. For improving their knowledge in any particular field of science the students use the materials available in the reading-room or in the library.
6. Simple adding machines were known as far back as the 17th century.

7. In modern computers transistors are used for performing complicated operations.
8. Having settled on a type of construction we must fix the spacing of columns.
9. Being rich in mineral deposits outlying districts were turned into large industrial bases.
10. Synthetic plastics are light and hard, being produced by mixing together a number of gases and liquids.
11. A civil engineer may aim at highway engineering, structural engineering or some other branch, and his education will be influenced to some extent by the choice he has made.

*TIME FOR FUN*

*1. Are you sure you remember the words of your active vocabulary? Compile as many words as you can with the letters of the word*

*advertisement*

*2. Read and try to retell the anecdote changing Direct Speech into Indirect.*

One day Mr. Wells came to see his friends Mr. and Mrs. Wilson. They were sitting at the table and having tea. There was milk and sugar, some ham and bread and butter on the table, but there was no cheese. The mistress of the house said, "I am sorry. I have no cheese in the house to-day" and gave Mr. Wells another cup of tea.

"Oh, it's all right," answered Mr. Wells, though he liked cheese most of all.

Mrs. Wilson's little boy was also at the table. He didn't say a word, but got up from his chair and hurried out of the room.

. A few minutes later he came back and gave the guest a small piece of cheese. Mr. Wells was about to put it into his mouth when he said, "That's a good boy! You have better eyes than your mother. Where have you found this piece of cheese?" The boy answered with a smile, "In the mouse-trap".

# Lesson 14.
# COMPETITION

*1. Read and translate the text*

## Competition

Competition can be distinguished as price competition and the competition based on the quality development and better sales organization. A fair competition is necessary for free market economy. New competitors enter markets all the time and sometimes current competitors drop out. Some competitors are more important than others, due entirely to the fact that they command a large percentage of the market part. Although these companies may not necessarily provide the best product or service at the best price, they nevertheless make the competitive environment more active.

Any construction firm for to be competitive must follow some rales. The firm's management has to examine the current realities of the industrial branch. The next step is the estimation of the business — when and where the firm can be the best. The most important subject is your target market.

Here is a practical example of the proper competitive behavior. The British company *Aprofim Ltd is* one of the respectable construction firms. For the last few years, *Aprofim* has been rated among the top 50 construction companies worldwide. The company specializes in electrical and agricultural turnkey projects, as well as industrial projects for governments and the private sector.

One of the company's branches operates in almost every region of Nigeria as well as other West African countries and the Middle East. *Aprofim's* expertise extends to road construction, bridges, culverts, mass earthworks, port design and hospital constructions.

Among the construction and turnkey projects undertaken by *Aprofim* are the following:

1. Coffee-processing and food-packaging factory in Lagos.
2. Air-conditioning and generator Assembly plant in Ondo State, Nigeria.

* Aprofim has constructed three rice mills in rural areas of Nigeria. The project includes designing, construction and commissioning of the rice mills, as well as the training of stuff.

And it is not a full list of course.

So we can see how *Aprofim* has found its geographical target market and how the firm operates there. For Nigerian economy and business groups *Aprofim* is beyond any doubt one of the most important investor and partners because *Aprofim* meets the current needs of Nigeria, the country with a tropical climate resulting agricultural problems.

*Aprofim* understands its competitiveness as permanent activities for increasing the number of life-important projects having been done in the region.

## *2. A few explanations to the text*

1. generator assembly plant—завод по сборке генераторов
2. mass earthworks—большие объемы земельных работ

## *3. Key vocabulary / expressions*

culvert—дренажная труба
generator assembly plant—завод по сборке генераторов
mass earthworks—большие объемы земельных работ
mill — мельница

## *4. General understanding. Answer the questions to the text.*

1. What do you think the target market is?
2. When a firm can be competitive?
3. What competition is a real mechanism for free market economical system?
4. Why does Aprofim work long and successfully in many countries?
5. Is it necessary to diverse a firm's activity to be competitive?

## *5. Read the derivatives correctly and translate thempaying attention to the suffixes*

compete—competence — competent — competitioner—competitive — competitor — competition — competitiveness





## *6. Complete the following sentences using a form of the word "competition"*

1 .There is a lot of_____among chocolate producers.
*2.Nescafe's* main_____is *Caferoma* at present.
*3. Vitek* needs to_____at home and abroad.
4.To be successful in business one needs to reach a_____ _____edge.
5 .There were many____for a vacant position.
6.Being_____is very important for any business.
7.A successful businessperson needs to assess_____of his business on the market from time to time.

## 7. *Read, translate and discuss the situation with your partner*

Each business is rated in terms of two major dimensions: market .attractiveness and business strength. These two factors make excellent marketing sense for rating a business. Companies will be successful to the extent that they go into attractive markets and possess the required business strength to succeed in those markets. If one or the other is missing, the business will not produce outstanding results. Neither a strong company operating in an unattractive market nor a weak company operating in an attractive market will do any good.

## *8. HOME READING.* .

*8.1. For further reading on thegiven topic we recommend Supplementary text*
Always be Certain To Watch Who's Gaining on You. p.p. 156-159.

*8.2. Conduct your own research to make a story about any world famous company you know.*

*8.3. Share your information in a monological speech with your proupmates.*

*8.4. Make a written report using your data. It must contain not less 300 words (up to the international level).*

## CUMULATIVE REVIEW EXCERCISES

1. Vaults were cast on timber framework.
2. A number of factors had a bearing on slow concrete adaptation for anything other than foundations.
3. At the beginning of the 19th century concrete became a matter of great interest.
4. Many people say that J.Mouier should be credited with the invention of reinforced concrete.
5. The trees were sheltering the early people from severe north winds.
6. Failure to control natural forces led to immediate disasters or gradual degradation of the enviroumental.
7. Myths concerned with basic human need for water are widespread in various cultures.
8. The oldest Neolithic settlement ever excavated, and the oldest conserved wooden boat are dated back to the 4th millennium B.C.
9. The bridge will not sustain heavy loads.
10. Children need a happy home environment.
11. The passengers were informed by radio about the flight being delayed for the nearest two-three hours.
12. The wind had fallen, the moon was shining over the quiet sea.
13. Pepsi-cola developed a one-way plastic biodegradable soft-drink bottle.
14. The basic concept of the competition is responsiveness to customers.
15. As you begin your competitive assessment, keep in mind that you need to evaluate only these competitors aiming for the same target market.
16. One of the worst statements you can make in your business plan is "We have no competition."

# Lesson 15.
# MODERN MANAGEMENT PRACTICES IN THE COMPETITIVE CONSTRUCTION INDUSTRY

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

### Modern Management Practices in the Competitive Construction Industry

Civil engineering is the oldest and one of the most highly respected of all the engineering disciplines. It is a traditional industry, by its nature. From the very beginning man has been a builder and his creative ability and skilful craftsmanship are what the modern civil engineering industry is founded on. Today these traditional skills are coupled with the entire modern technology and thinking available to enable civil engineers to carry out their work to the highest of standards.

The traditional background of the industry presents, however, some problems. First of all, it is often perceived as old fashioned and reluctant *to fully come to terms with the business world of today[1]. But it is obvious that new ideas cannot be implemented until they have been tried, proved and tested. So, if new management techniques are not considered and adopted, there would be a loss in competitive advantage, a vital factor in a highly competitive industry. That's why it is necessary to ascertain the importance and relevance of management training in the construction industry.

People have been managing companies ever since companies came into existence. If a company produces work of a quality that satisfies customers, then a continuous flow of work to the company will follow. The world has, however, changed. It is now necessary to

manage a company effectively and efficiently as well as to produce high quality goods. It is especially important nowadays when construction work is limited and construction companies *have to cut margins to obtain work.[2] Therefore, the effective management of an organization has become an art form in itself.

Civil engineering is a business and its survival is in making a profit. And it is the success of the "team" that is important. The team could be made up of engineers, quantity surveyors, estimators, planners, QA managers^ personnel and computer specialists; all form an integral and equally important part of the business. Engineers may not grow into managers, but they must be trained for this role.

But it would be wrong to assume that years of engineering experience produce an effective manager. Mainstream management focuses on repetitive operations, as in a factory or retail store, but in the construction industry these operations are not applied. Managers in this industry operate in an unstable business environment, according to the workload of their company. And it is a recognized fact that construction managers do not come into being by themselves. The range of skills required is so diverse that a natural progression up now a need to train managers through the ranks of seniority will not provide all the necessary knowledge to produce an effective manager.

The training of graduate engineers in the construction industry at present consists of the undergraduate training within tertiary education, and postgraduate training within the industry itself. Although the number of hours devoted to teaching management is increasing at educational establishments, graduates are still not adequately prepared for industry. Further training within the industry is varied and dependent on many factors such as the needs of the company, size of the company, and current health of the industry.

Management and management training within the construction industry is varied and is dependent on the sector, consulting or contracting, within which an engineer operates. It is necessary to take into consideration the attitudes of civil engineers and their companies towards modern management practices. Constractors (or construction managers) are moving rapidly to meet the challenges of a modern business world and *are making full use of the tools available[3]. Consultants are a little behind in their attitudes to modern





management but are improving; they have not yet realized the full potential of management training.

*The alteration of consruction industry attitude towards management practice[4] would appear to stem from the business market within which a company is going to operate.

## 2. A few explanations to the text

1... .to fully come to terms with the business world of today... — полностью соответствовать современному деловому миру...
2... .have to cut margins to obtain work.—приходится снижать стоимость, чтобы получить работу.
3. .. .are making full use of the tools available. — полностью используют все доступные средства.
4. The alteration of consruction industry attitude towards management practice... — Изменение отношения к управлению в строительной отрасли...

## 3. Key vocabulary / expressions

couple [клр1] with—v соединять (ся)
embrace [im'breis] — v принимать *{теорию, учение и т.п.);* включать, охватывать
homogeneous [homa' 63 i :nj as]—*adj* однородный
ladder ['lasda'] —*n* лестница
lag [lasg] — *n* отставание, запаздывание
margin [niacin] — *n* край, граница; резерв, запас
relevant [' relivant] — *adj* уместный
reluctant [ri' Lvktant] — *adj* неохотный; ~ ly *adv* неохотно, нежелательно

## 4. Phonetic Test

scope, scientist, contractor, scene, services, scythe, invoice, critical, cycle, relevance, architect, client, scalp, charge, gain, general, obligation, edge, margin, graduate, management, forget, progression, gymnastic.

***5. Explain the meaning of the words***

tertiary education_____
mainstream management_____
the ranks of seniority_____
the effective management of an organization_____

*6. Translate and memorise the words with same stem*

manage—manager—managerial—management—manageable — manageress
environ—environment—environmental—environmentalism — environmentalist —

*7. Speaking Practice. Read and translate the following definitions. Discuss the difference between these two notions with your partner*

**Business Ethics**—moral principles concerning acceptable and-inacceptable behavior by business people. Executives are supposed to maintain a high sense of values and conduct honest and fair practices with the public. An example of a lack of business ethics is when an advertising firm develops a deceptive and grossly misleading ad campaign for a product.
**Business Etiquette** — generally accepted behavior, which may be open to dispute. The professional behavior may be based on custom and morality. There are social guidelines and manners to be followed in business situation when dealing with others. An example of a lack of business etiquette is when a salesperson is late in visiting a client.

***7.1. Explain the role of a construction manager and his/her (their) duties.***

***7.2. Explain how the proper management process makes a construction company quite competitive***





***8. HOME READING. For further reading on the given topic we recommend Supplementary text***

**1.** How **To** Effectively Manage the People, p.p. 164-168.
2. How To Productive Manage Your Time. p.p. 168-169.

## CUMULATIVE REVIEW TEST

**1**. Construction industry suffers greatly when the economy is in recession.
2. All managers have their own style, even if they've never thought about their approach to management.
3. New management techniques make the construction industry a highly competitive field.
4. A construction company's management must rule the company effectively to have a good profit.
5. Usually any new idea in building industry can't be adopted until it has been proved and tested.
6. When speaking about engineering education one should keep in mind that the education of an engineer, therefore, extends over a wide range of knowledge: from pure science, and especially from what is known as engineering science, to technology.
7. Contractors are moving rapidly to meet the challenges of a modern business world and are making full use of the tools available.
8. Consultants, however, are lagging behind in their attitudes and are slower in embracing the theories and practices involved.
9. Sufficient information must be provided to seriously think about the subject of management, and the training of managers within the construction industry.
10. Each funding round is used to successfully reach new stages of company development.
11. The market should be large enough to profitably sustain your business.
12. Due diligence is the process undertaken by venture capitalists, investment bankers or others to thoroughly investigate **a** company before financing.

*READ FOR FUN*

## *1. Read and try to retell the anecdote.*

A rich businessman was dying. He asked all his family to leave him alone with his partner who had been in the same business with him for years. The rich man considered him a reliable partner and an excellent man. The dying man wanted to tell him something important and he did not want anybody to hear their conversation. "George," the man said when they were left alone. "I'm dying.... I must tell you. Listen, please. I've always been bad to you. When you were away on business two years ago, I took a big sum of money from the safe and never put it back. I've always tried not to let you be a success in business. I've greatly disliked you all my life. You, certainly, remember that plan of yours. I did my best to fail it. You thought that the changes in business had caused its failure, but it wasn't so. The real reason was quite different. I had sold your secret to another company for a hundred and fifty thousand dollars. Oh, George, forgive me, please". "Don't worry, Jim," said George, "That's all right. I've also got to tell you something. I was not so reliable as you thought I was. It was I who put poison into your soup at dinner yesterday".

# Lesson 16.
# CAPABLE MANAGEMENT

## *1. Read and translate the text*

### Capable Management

Perhaps more than any other factor, competent management stands out as the most important ingredient in business success. The people you place in key positions are crucial in determining the health and viability of your business. * Moreover, if you want to raise additional funding their apparrent experience and skills[1] often determine whether a business plan you submit for funding is acted upon favorably by investors or banks.

Because of the significance of management to business success, many venture capital firms place the single greatest emphasis on this factor when deciding on their investments, and they review the management section of a business plan with special scrutiny. Your business plan must inspire confidence in the capabilities of your management.

Before submitting your business plan to investors, conduct your own analysis of your management team. Evaluate each individual (and yourself) to see if he or she fits the profile of a successful manager. Some of the traits shared by successful managers are the following:

*Experience*. They have a long work history in their company's industry and/or they have a solid management background that translates well to the specifics of any business in which they become involved.

*Realism*. They understand the many needs and challenges of their business and honestly assess their own limitations. They recognise the need[2] for careful planning and hard work.

*Flexibility*. They know things go wrong or change over time, and they are able to adapt without losing focus.

*Ability to Work Well with People*. They are leaders and motivators with the patience necessary to deal with a variety of people. They may be demanding, but they are fair[3].

In developing your own business plan, determine whether key members of your management team possess these characteristics. If not, perhaps you can increase training, add staff, or take other measures to enhance your management's effectiveness. * For instance , if you have little or no experience in your chosen field, perhaps you should first take a job with an existing company in that field before opening your own business.

## *2. A few explanations to the text*

1. Moreover, their apparrent experience and skills — Более того, их личный опыт и навыки....
2. They recognise the need... — Они признают необходимость...
3. They may be demanding, but they are fair. — Они могут быть требовательными, но справедливыми.
4. For instance,... — Например,...

## *3. Key vocabulary I expressions*

crucial ['kru: rial]—*adj* решающий, критический
inspire [in' spaia] — v вдохновлять; внушать
possess [pa'zes] — v владеть; обладать
scrutiny ['skru:tini] —*n* рассмотрение, критический разбор; проверка правильности подсчета
submit [s3b'mit](for) — v подавать, представлять на рассмотрение
trait [treit]—и черта, особенность

## *4. SPEAKING PRACTICE. Read and speak on the problem raised by the practitioners.*

"Part of planning is people planning. We want our managers to tell us about their people resources. People issues make up one of the largest sections of our business plan. We want to know how people will be used, and how managers are training their people and preparing for succession".

*George James, Sr. V.P. & CFO, Levi Strauss & Co.*





*What do the abbreviations after his name mean?*

"The one element that will automatically eliminate a (business) plan from consideration is an inexperienced management team. Execution is 95% of success. So, get experience before you start your own business".

*Nancy Glaser*
*Venture Capitalist*

## *5. Translate the proverbs. Find exact Russian equivalents for them.*

1. All is well that ends well.
2. Honesty is the best policy.
3. Better an open enemy than a false friend.
4. In the evening one may pray the day.
5. Faint heart never won fair lady.
6. He dances well to whom fortune pipes.
7. Fool's haste is no speed.
8. Nothing is impossible for a willing heart.

## *6. Discuss with your partner the situations raised in the proverbs*

## *7. HOME READING. For further reading on the given topic we recommend Supplementary texts*

1. Business Ethics, p.p. 170-172.
2. Qualities of a Good Manager, p.p. 172-173.

## CUMULATIVE REVIEW TEST

## *8. Translate the following sentences paying attention to grammar structures used in them:*

1. To be more successful you should know and use appropriate basic business terms.
2. Do not use lots of technical jargon in the hope of sounding impressive when speaking to the people.
3. It is certainly not necessary to be a Business School graduate to develop a good business plan.
4. Once you have defined your market, you should then assess its size and trends.
5. You cannot have everything. Where would you put it?
6. Nothing happens unless first a dream.
7. We can't control others or certain events in our lives but we can control how we react to those events.
8. Do you know the proverb "cut the coat according to the cloth"?
9. When a body in a rotational motion moves in a radial direction, a force acts to speed up the body.
10. We have a big studentsbody at our university.
10. Christopher Wren was an outstanding English architect, the one who built St.Paul's Cathedral.
11. We couldn't have picked a worse day for a picnic — it rained nonstop.
12. Of course, one must make profit, but not if it involves exploiting people.
13. The government could do a lot more to assist small business.
14. They have been granted the permission to pull down the old ruining city theatre.

# SUPPLEMENTARY TEXTS

i

*To be read for more information on construction history*

## How the Ancient Builders Put a Hand To the Development of Different Languages

The people of Babylonia were rich and powerful. They were also happy. They loved each other and they enjoyed working together. But one thing was lacking. Men had only the earth to enjoy. God had kept heaven for himself and his angels.

The King of Babylonia decided that his people should have Heaven as well as Earth. So he ordered them to build a great tall tower. Six hundred thousand men began making bricks and mixing mortar and piling up a building higher and higher. All day every day men carried bricks and mortar up a stairway on the east side of the tower. Then they walked down another stairway on the west to get more loads. This went on for forty-two years until the Tower was twenty-seven miles high. It was so high that it took a man a whole year to carry bricks from the ground to the top.

Now the Tower had risen nearly to Heaven, and God saw that he would have to do something to keep the invaders out. Perhaps if he made it hard for people to co-operate, they would not be able to finish the Tower. To carry out his plan God sent seventy angels down to Earth. The angels had orders: first to take away the one language everybody understood, then to split the people up into groups, with each group speaking a new tongue of its own. In no time the men who made bricks couldn't talk to the men who carried them. And the men who carried bricks couldn't say an understandable word to the men who laid the bricks. Everything was a mess, and everybody blamed everybody else for not understanding. People no longer talked about the Tower of Heaven. Nobody worked there any longer. And the Tower was soon ruined.

## Ancient Wonders of the World

*The Great Pyramid is* the only one of the Seven Wonders of the Ancient World that still stands. It was built at the order of the Pharaoh Cheops, who once ruled Egypt. More than 100,000 slaves laboured 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 *Sphynx.* 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 is a small temple. Since no one knows exactly why the Sphynx was built, it remains a symbol of mystery — a riddle.

In Babylon, one of the great cities of the Ancient World, there 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 shubs. 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 Nebuchodnozzor, who is mentioned in the Bible as the cruel conqueror of Jerusalem.

The greatest god of the ancient Greeks was Zeus, for whom the Roman name was called Jupiter. The greatest *statue of Zeus* was at Olympia, where the famous Olympic Games were held in its honour. The statue was 40 feet high • — about seven times a man's hight — and was made of marble, decorated with pure gold and ivory. After 1,000 years, an earthquake tumbled it down.

*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 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 harbour, 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 harbour of Alexandria, in Egypt, and light atop a high tower could be seen for sixty miles. To keep the beacon the powerful electric lamps behind glass lenses used in our lighthouses were not yet.

*Answer the questions to the text*

1. What is a mausoleum?
2. Who destroyed the Temple of Artemis?
3. Describe the Hanging Yardens.
4. Where was the greatest statue of Zeus?
5. What is Rhodes famous for?
6. Why was the Pharos built?

## П

## The World Famous Buildings and Constructions

### The Moscow Kremlin

The Moscow Kremlin is the chief architectural ensemble of the capital. It has few rivals in the number of unique masterpieces of architecture and other art concentrated within its walls.

The might of its walls, its ridge-roofed towers and the three-dimensional expressiveness of the buildings clustered on its grounds offer panoramas of rare beauty. The triangle of the Kremlin walls, repeating the outline of Borovitsky Hill, encloses an area of 27.5 hectares. The maximum height of the hill above the level of the Moskva River is about 25 metres.

The ensemble of the Moscow Kremlin is the result of the efforts of many generations. Signs of a Slavic settlement here date to no later than the end of the 11th century. At the time the fortress on the top of Borovitsky Hill covered the area of about 5 hectares. The first Moscow fortifications consisted of a moat, a rampart and a palisade. The city built here on the orders of Prince Yuri Dolgoruky in the 12th century was 5 to 6 times as large as the initial area.

By the end of the 15* century the unufication of the Russian feudal principalities was completed and a United Russian State had been formed. Ivan the III the Grand Prince of all Russia launched reconstruction of the Kremlin on a large scale, having invited a number of master builders from Italy for the purpose. So the Italian architect and military engineer Aristotel Fioravanti arrived in Moscow to work there for many years.

The new Cathedral of the Dormition (1475-1479) was the first to be built. In 1484-1489 the festive Cathedral of the Annunciation was erected next to it They were joined by the Cathedral of the Archangel in 1505-1508.

For a whole decade starting from 1485 old walls and towers were replaced with new ones. It was then that the Kremlin acquired its present-day outlines.

The fortress walls forming an irregular triangle are of 2,235 m long, from 3.5 to 6.5 m thick and from 5 to 19 m high. Atop the walls stand 1,045 bifurcated merlons from 2 to 2,5 m in height and fitted with narrow embrasures.

Along the east a moat 12 m deep and 32 m high surrounded Kremlin walls.

On its northwest side Borovitsky Hill was protected by the Neglinnaya River and on its south side by the Moskva River.

The Kremlin was a superb example of the fortification art of the period.

*Answer the questions to the text*

1. What was the Moscow Kremlin initially?
2. What was the 15th century marked by?
3. Who launched reconstruction of the Kremlin?
4. Who came to Moscow to take part in the construction of the city?





5. What cathedrals were built?
6. What can you tell about the Kremlin walls?
7. How was the Kremlin protected?

## Flood Defence System

. In October 1980 the first stone with the words "Let's protect St. Petersburg from floods" was thrown into the waves of the Gulf of Finland near Gorskaya—that was the beginning of the construction of a flood defence system supposed to protect St. Petersburg from floods.

During the years of its existence the city has had nearly 300 floods. Three of them, in 1777, 1824 and 1924 were catastrophic. Ever since the foundation of the city by Peter the Great in 1703 various schemes for its protection were offered by specialists. But only due to modem technology such a giant hydroengineering project was made possible.

The starting point was the adoption of the General Plan of St. Petersburg development (1966) which provided for the construction of a flood defence system. Fifty two scientific, designing and other organizations worked on this scheme for six years.

What does the hydroengineering complex look like?

Eleven giant dams of rock and soil (each 8 metres high above sea level) cross the Gulf of Finland from Gorskaya in the north to Lomonosov in the south of the Gulf through Kotlin Island (Kronstadt Fortress). Along the length of the dams there are six spillways to let the water through in normal conditions.

Ships will pass through two deep-water channels which are located on each side of the island, the 200 metres wide southern channel will be the main.

When a rise in the water level is forecast the whole automatic system will be put in action. The gates which are located over the spillways will go down to close the "windows" and the gates which slide along special rails on the bottom of the channels will come out •of the dock chambers and bar the way to the sea wave. It will take only 30 minutes to perform all the operations.

It should be said that the construction of such gates is a sort of revolution and has no analogy in modern world practice.

Motor-car highway—24.4 kilometres long and 35 metres wide — runs along the top of the dams and bridges over the spillways and

twice it "dives" into the tunnels under the bottom of the channels. The length of the southern tunnel is some 2,000 metres and that of the northern one is 1,400 metres.

The construction of the highway is paid great attention to'S as according to: the General Plan for the development of the city It is to become the outer part of the 150 km ring motor-road which will be built around the city.

However, the construction of the dam aroused hot discussions, the opposition was very strong. As a result the work was stopped half-way.

Some years later it became evident that it was a grave error and that the defence system should be built. The present government of St. Petersburg is doing everything possible to resume and finish the construction to prevent the city from serious damages.

*Answer the questions to the text*

1. What was the starring point for the construction of a flood defence system of the city?
2. Were any schemes for the protection of St.Petersburg offered in the past?
3. What does the hydroengineering complex act?
4. Is there any analogy of such a construction in the world?
5. Is it possible to prevent the city from serious damages?

## Washington, D.C.

The capital of the United States is situated on the Potomac River in the District of Columbia. This area is not a state, but Federal Land.

The nation's first president, George Washington, selected the site for the district. It is the first carefully planned capital in the world.

The center of the city is the Capitol Building, the seat of the Government. It is the highest building in the city that doesn't have any skyscrapers. Home of both the Senate and the House of Representatives, it contains some 430 rooms.

Topping the dome is the 19-foot bronze statue of Freedom. The 36 columns which surround the lower part of the dome represent the states in the Union at the time this impressive structure was designed. Construction of it began in 1793, finished in 1867.





The White House in Pennsylvania Avenue has been the official residence of every American President except G.Washington. The original design of the house was drawn by James Hoban, an Irish-born architect.

The White House has a lot of beautiful rooms, each one has its own distinctive style. The largest is the East Room which is used for State balls, receptions, press-conferences and other events. The finest room is the Blue Room used by the President to receive guests. The Red Room is uced for small receptions. It is a favourite room of First Ladies. The Capitol and the White House are open to visitors daily.

The Washington Monument, built at intervals between 1848 and 1885, memorializes George Washington's achievements and unselfish devotion to the country. The Monument is situated in Potomac Park and is over 180 metres. The top may be reached in 70 seconds by elevator or by an iron stairway. From the top visitors can see the entire District of Columbia and parts of Virginia and Maryland .

The Lincoln Memorial is designed like a Greek Temple with columns, representing the states in the Union at the time of Lincoln's death. The main feature of the building is the magnificent, realistic figure of Lincoln seated in the center of the open temple.

The Jefferson Memorial with wonderful cherry-trees around is a circular stone structure. In the central chamber there is a full-length figure of the third President of the USA, the author of the Declaration of Independence. The statue was created by the American sculptor Rudolf Evans.

Arlington National Cemetery is a site of the Tomb of the Unknown Soldier. John Kennedy was buried there in 1963.

John Kennedy Center for Performing Arts is the official memorial to President Kennedy in the Nation's capital.

*Answer the questions to the text*

1. Who selected the site for the District of Columbia?
2. What is the center of Washington?
3. Whom was the design of the White House drawn by?
4. What rooms are there in the White House?
5. Where is the Washington Monument situated?
6. What structure has the Jefferson Memorial?

## Lincoln Memorial

Welcome to the Lincoln Memorial, located on the west bank of the Potomac River, on the axis of the Capital Building and the Washington Museum,

The structure itself was designed by Henry Bacon in 1912 and completed ten years later at a cost of 2.9 million dollars. The outer walls of the Memorial are White Colorado marble 189 feet long and 118 feet 8 inches wide. The thirty-six outer columns are also of marble, representing ihs thirty-six states that were in the Union at the time of Lincoln's death. The name of each state is cut into stone above the column.

Inside the Memorial, the walls are Indiana limestone and the floor is pink Tennessee marble. Three commemorative features include the huge seated statue of Lincoln and two inscribed stone tablets. The marble statue occupies the place of honour, centrally located and facing the Washington Monument and the Capitol Building. The statue is 19 feet high and 19 feet wide, made of twenty-eight blocks of Georgia white marble. Because of the immense size, it took two men four years to complete the carving.

On the north wall, inscribed in stone, is Lincoln's Second Inaugural Address; on the south wall, similarly inscribed, is the Gettysburg Address.

There is a mural above each inscription, representing the two greatest accomplishments of Lincoln's presidency—the emancipation of the skves and the unification of the North and South after the Civil War.

This Memorial is open daily from eight o'clock in the morning to midnight. Stay as long as you like, and be sure to ask one of the park service employees if you have any questions.

*Answer the questions to the text*

1. What material was used in the construction of most of the Lincoln Memorial?
2. Why are there thirty-six columns?
3. What other buildings can be seen from the Memorial?
4. When is the Memorial open?
5. Why are there thirty-six outer columns?





6. What materials were used for the Memorial?
7. What is inscribed in stone?
8. What does a mural above each inscription represent?

## New York

New York, one of the largest and most exciting cities in the world, is situated at the mouth of the Hudson River, where it empties into the Atlantic Ocean, and consists of five parts, called boroughs: Manhattan, Brooklyn, Queens, Bronx and Staten Island.

*Manhattan* is an island 13 miles long and 2 miles wide Manhattan is the centre of American finance, advertising, art, theatre, publishing, fashion—and everything else. This famous island is divided into the East Side and the West Side. The dividing line is Fifth Avenue.

*The Wall Street AreaThe* first Europeans to settle in Manhattan were the Dutch.To protect themselves from possible attacks, they builta strong wooden wall. This wall, which is now destroyed, gave its name to a street in Lower Manhattan, and the street, in its turn, become a synonym of American capitalism. Of course, this street is Wall Street. Both the New York Stock Exchange and the American Stock Exchange are located in the Wall Street area, as well as many banks and offices of many large corporations. The twin towers of the World Trade Centre destroyed by terrorists on the 11$^{th}$ of September, 2002 were also here. Their height was 1350 feet, and on the 107$^{th}$ floor of one of the towers there was an observation desk.

*Midtown* Many of New York offices and jobs are concentrated in Midtown, as well as many of its famous skyscrapers.

The first skyscraper in New York was built in 1902. It was twenty storeys high.The first building boom for skyscrapers came in the late 1920's. These skyscrapers were built in art deco style and were abundantly and richly decorated. The most beautiful and famous of the art deco skyscrapers of than type there are the Chrysler Building and the Empire State Building, the third highest building in the world.

*The State Empire Building* became a symbol of New York. The Empire State. Building was designed by the internationally famous firm of architects and completed in 1931.

The exterior of the world's most famous building is made of Indiana limestone and granite trimmed with millions of sparkling stainless steel which reach from the sixth floor to the pinnacle of the building.

The Empire State Building soars more than a quarter of a mile into the atmosphere above the heart of Manhattan. Centrally located in the heart of Manhattan, it presents unprecedented views to all four sides.

The upper 30 floors of the Empire State Building are illuminated nightly from sunset to midnight either in white or an appropriate colour scheme commemorating special events.

There are two observatories, one on the 86th and one onthe 102" floor. The 86th floor observatory, 1050 feet (320 m); reached by high speed elevators, has both a glass-enclosed area, which is heated in winter and cooled in summer, and spacious outdoors promenades an all flour sides of the building. Standing on the 102nd floor — 1,250 feet (381 m) above the bustling streets below, visitors can see the surrounding countryside for distance up to 80 miles. Over 3,5 million visitors come to the top of the Empire State Building every year.

In 1955 the American Society of Civil Engineers honoured the Empire State Building as one of the Seven Modern Wonders of the Western Hemisphere.

*Rockefeller Centre,* which was built in the 1930's, is the world's largest privately owned business and entertainment centre. Today it consists of nineteen buildings, which include offices, shops, and various places of entertainment. In the 1950's there was a second building boom, which introduced a new style — buildings of steel and glass. The United Nations Secretariat building was the first steel-and-glass skyscraper.

*Times Square* got its name from the New York Times, the most popular newspaper in America, which has its main office there.

*Central Park.* Practically the whole of the Manhattan area is a sea of concrete. Luckily for New Yorkers, there is one exception: Central Park. The huge park in the middle of the city was designed in the 1850's by the landscape architect Frederic Law Olmsted.

*Answer the questions to the text*

1. Who were the first Europeans to settle in Manhattan?
2. Why is Wall Street called Wall Street?
3. Why is Wall Street a synonym of American capitalism?
4. When was the first skyscraper built in New York?
5. What style were the first skyscrapers built in?
6. What is Rockefeller Centre?





7. Explain the name "Times Square"
8. When was Central Park opened? What architect designed it?

## London: Places of Interest

There are a lot of places of interest in London. Among them are the world famous buildings and architectural masterpieces: Westminster Abbey, the Houses of Parliament, St.Paul's Cathedral and others. Here you will find their descriptions.

*Westminster,* now the political centre of London, was until the 11th century a sacred place. King Edward the Confessor decided to build a great abbey church here.. It was consecrated in 1065, but a week later the King died and was buried in the abbey. His tomb became a popular place of pilgrimage. William the Conqueror was crowned in the Abbey and since then all Coronations have taken place here.

The Abbey contains many royal tombs, memorials to eminent people. But the most popular ones are those to writers, actors and musicians in Poets' Corner.

Alongside the Abbey Edward the Confessor had a palace built. The palace of Westminster was the royal residence. Until the 19th century it was also the country's main court of law, and Parliament has met there since the 16th century.

The present *Houses of Parliament* were built after the old palace burnt down in 1834. The building contains the House of Commons and the House of Lords, the two chambers where parliamentary business is debated. On the corner next to Westminster Bridge stands St. Stephen's Tower, which houses the famous bell, Big Ben, which chimes the hours.

*Buckingham Palace* built in 1702-1705 is the Queen's official London residence. In front of the palace you can see London's most popular spectacle — Changing the Guard. It lasts about 30 minutes.

*St. Paul's Cathedral* as well as *Big Ben* are Sir Christopher Wren's masterpieces. The construction of the Cathedral started in 1675 and was not finished until 1709. The magnificent classical structure is crowned by the dome. Inside the dome is the famous Whispering Gallery. There are many memorials in the Cathedral including those to heroes such as General Wellington and Admiral Nelson.

*Tlie Tower of London* has been closely associated with many important events in Englisn history. It has served as citadel, palace,

prison, mint and menagerie. The White Tower was built in 1078 by William the Conqueror to protect the city. The Tower is guarded by the Yeoman Warders popularly known as "Beefeaters", clad in their traditional Tudor uniforms.

*Windsor Castle,* standing on a rock overlooking the river Thames,was founded by William the Conqueror and was later fortified and enlarged by almost every monarch since the Norman Conquest. Charles 11 and later monarchs continued to make alterations to suit the needs and fashions of the day, including the laying out of the Great Park as their personal estate. Nowadays Windsor Castle is a comfortable country place within an hour's drive from the capital, where the Royal family can relax.

*Hampton Court Palace* Hampton Court is a royal residence which is associated with Henry VIII. Cardinal Wolsey, Henry's friend and adviser, was a brilliant politician and diplomat. He began building this grand palace in red brick in 1514. In 1526 Wolsey presented the unfinished palace to his king, and Henry continued the work until Hampton Court was one of the largest brick buildings in Europe.

Like many English old castles and palaces, Humpton Court is haunted. According to a legend, one of the galleries is haunted by Henry's fifth wife Catherine Howard, who was executed on a charge of infidelity. Another legend says that Jane Seymour, his third wife, also walks here in the palace where she died giving birth to the future Edward Yl. Some legends tell that the ghost of Anne Boleyn, Henry's second wife who was executed, sometimes walks along the ramparts of the Bloody Tower. Henry himself, however, rests quietly: his ghost has never been seen by anybody.

*The Barbican Centre* is an enormous complex which contains two theatres, an art gallery, a library, three cinemas, two restaurants and two exhibitions halls.

The building itself is very interesting: it is built on eight levels. Four of these levels are underground. On the fifth level there is a lake, complete with 45 fountains, and air terrace where you can have coffee.

The Centre has been finally opened after seventeen years' discussion and planning. The construction of the Centre was started in 1970. At that time it was expected to cost 190 million. At last on the 3rd of March 1982 Barbican Centre was opened by Queen Elisabeth herself. At that time the final cost of the construction was 150 million.





*1. Answer the questions to the text*

1. Who began building Windsor Castle? With what purpose did he build it?
2. How far from London is Windsor Castle situated?
3. Why is there a mixture of styles in the architecture of Humpton Court Palace?

*2. Find words and phrases in the text that mean:*

Вильгельм Завоеватель_____;_____
священное место_____
место паломничества_____
королевские усыпальницы_____
"Галерея шепота"_____
монетный двор_____
зверинец_____
страж Тауэра_____

## III

## Constructional issues

### The Community and Architecture

The forms to be taken by community must be decided before they are constructed. But long-term "master plans", we have learned, must not be too detailed. Someone must plan where streets are to run, parks are to be laid out, and industrial facilities are to be furnished. Someone must plan new housing and new public buildings, parks, and playgrounds. Surely architects are necessary for these goals. And yet, community plans need the contribution of experts in many fields. Modern city planning has become so complex, so enmeshed in static, and so controlled by financial interests that too often community plans appear that are lifeless and mechanical. In this field it is the architect's task to redress the balance, to realize that cities exist for people, that business and industry and science should serve the people and not enslave them.

During the last century hundreds of cities grew up throughout the world, and thousands of country towns expanded into great industrial

or commercial centers. In the sense that all the buildings in Chicago or Los Angeles were constructed in recent times, they are modern communities. But in these new cities one searches in vain for any common principle of design that would distinguish them from earlier towns.

If, however, one examines the contemporary city more closely, one comes upon forms that had no counterpart in any earlier civilization. The country villa and the suburb are time-honored forms; but only with the development of rapid transportation, however, did it become possible to disperse the population of a great center over an area at least ten times as great as the biggest cities of the past. The skyscraper has permitted the assembling of business offices and light industry in concentrated hives, served by vertical transportation; but the erection of such buildings on streets designed for four-story buildings and horse drawn transportation has everywhere produced chaos.

Nowhere have the new forces in urbanism been organized so as to create both a functional and an aesthetic unity. One cannot derive an archetype for the modern city from any existing example. Neither can one create it merely by uncritically accepting all technological devices as essential ingredients. There is room, then, for an effort to define the modern community in ideal terms, on the basis of existing facts and tendencies. These facts and tendencies are not confined to the provinces of engineering and architecture; they issue from industry, from education, from medicine and psychology, and indeed from politics.

*Answer the questions to the text*

1. Who must plan new housing and public buildings?
2. What forms are time-honoured?
3. Are there any forms in the modern cities that have counterparts in earlier civilizations?

## Building Materials

*White Portland Cement.* The chemical composition and characteristics of white Portland cement are similar to those of ordinary Portland cement except that the latter is of a grey colour. The colour of white cement is due to the raw materials used and special precautions taken in its production. The materials are pure limestone and china (white) clay, the iron oxide content being less than 1 per cent.





White cement is more expensive than ordinary cement. It is used in places where, fof ornamental purpose, the white colour is desirable.

*Portland Blast-Furnace Cement.* This is a mixture of ordinary Portland cement and blast-furnace slag. The slag is mixed with ordinary cement clinker and passed to a ball mill for thorough incorporation and fine grinding. The proportion of slag must not exceed 65 per cent, and that of Portland cement clinker not less than 35 per cent.

*High Alumina Cement.* It is dark brown in colour. It contains about 40 per cent each of lime and alumina with about 15 per cent of iron oxides. This cement sets at about the same rate as Portland cement but gains strength very rapidly. Owing to the chemical activity after hardening for the first 24 hrs, it requires very wet curing conditions. This cement is several times more costly than ordinary Portland Cement.

*Tufa Cement.* Tufa Cement is formed by grinding pulverized tufa with an approximately equal volume of Portland cement. Tufa is a rock of volcanic origin, consisting of 65 to 75 per cent silica and 10 to 15 per cent alumina, with some of the silica soluble.

*Sedimentary Rock.* This division comprises those stones which are chiefly employed for building purposes. Most of these rocks are formed of fragments of igneous rocks, which have been deposited by water in layers or strata. As successive layers were formed these sediments became hardened and consolidated by great pressure and were cemented together by sandy or clayey paste or by a chemical substance (such as carbonate of lime) conveyed by the percolating water. Other rocks of this division are formed from remains of marine organism (shellfish, etc) and chemically by precipitation. The principal sedimentary rock are sandstones and limestones.

*Sandstones.* These consist of grains of quartz (sand or silica) held together by a cement or matrix. Sandstones are classified according to the nature of the binding material thus *siliceous* sandstones, *calcareous* sandstones and *argillaceous* sandstones. Sandstones form one of the most valuable materials. The durability of sandstones depends very/largely upon the cementing material. Siliceous sandstones are therefore generally considered to be the most durable of the sedimentary rocks, as the binding material of silica is highly resistant to acid attack. The excellent state of preservation of

many ancient, buildings 'built of this stone is evidence of this. City buildings constructed of sandstone often assume a drab appearance owing to the dark colour.

## *Ask your questions to the text*

## To the History of Construction

With the introduction of the railways and steam machinery, transportation and manufacturing costs were considerably reduced and concrete came to be more widely used, but it was still very much a neglected material. Therefore, good concrete was scarce and a great deal of poor concrete was used.

The big break-through was the discovery of Portland cement by Joseph Aspdin in 1824, a worker in an English town.

When he was working an idea came to him as to how to make his work better. He started his experiments. After some time he obtained a powder. When it was mixed with water and allowed to stand it "sets" forming a hard substance. This substance was so much like the building stone from Portland that the powder was named Portland cement. As years passed different materials were found in many countries from which Portland cement could be made.

Portland cement was first used on a large scale in the construction of the Thames tunnel in 1828.

As early as 1830 the first idea of reinforced concrete was mentioned in a publication, which suggested that a lattice of iron rods be embeded in concrete to from a roof.

Patents were taken out for all sorts of systems in all countries. The development of reinforced concrete really got under way in the 1850's and 60's.

Lambort, a French contractor, built a concrete boat for the Paris International Exhibition of 1855, with 2 inches sides reinforced with a skeleton of iron rods.

W. Wilkinson, who patented a method of constructing a concrete floor in 1854, is considered by many to be the inventor of reinforced concrete as well. -

But many people say that a Frenchman, J. Monier, who took out a patent in 1867 for the construction of plant tubs, tanks, etc., made





of concrete reinforced with a mesh of rods or wires, should be credited with the invention. Certainly Monier did a great deal to develop the use of reinforced concrete and his name came to be so closely linked with reinforced concrete that reinforced concrete was known as the Monier System.

Wilkinson, however, certainly appears to have been the first. His patent covered for concrete floor slabs reinforced with a network of flat iron rods placed on edge. One of his main claims was the good fire resistance of the floor. He appears to have understood the principles of reinforced concrete, for he stated that the reinforcement was to be placed in the concrete to take the tension.

A number of buildings were erected, using Wilkinson's system. He also described method for the construction of pipes, reservoirs, and walls of concrete reinforced with metal sheets, bars and chains.

Freyssinet is known for his work in prestressed concrete for which he had his first ideas before First World War. With the improved materials and the new knowledge available, Freyssinet realised the advantage to be obtained from prestressing, and he used his system in prestressed works.

From now on structures became bigger, better and more exciting, and concrete steadily strengthened its position as a building material. Reinforced concrete was recognized as the best material for all types of structures.

The post-war era has given the biggest boost to concrete, both reinforced and prestressed. After the war steel was short in Europe and many architects had to use either reinforced or prestressed concrete in their structures in order to economize in steel.

Architects were perhaps a little surprised to discover that in many cases reinforced concrete structures, apart from using the minimum of steel, were also cheaper than other forms of construction, and could be erected as quickly. They also discovered that they had more freedom for planning than they had ever before, and a larger number of different solutions to each structural problem were available.

Beams could be eliminated, floor spans could be increased, and shells were available for roofing large areas.

Another big factor, which encouraged the use of concrete, was the introduction of fire regulations, which recognized the superiority of concrete over other structural materials in its fire resistance properties.

*Ask your questions to the text*

## The Properties of Concrete

Concrete must be hard, strong, durable, dense, non-porous, fire-resisting and economical.

Concrete has proved to be durable when made of good materials, well mixed, and properly cured. Failures can be found in concrete work, but the trouble is usually caused by poor material, faulty foundations, lack of knowledge of the properties of concrete or poor workmanship. For example, some cements will give better results in sea water than others. This fact had to be established by experience and experiments.

It is more difficult to secure durable reinforced concrete than mass concrete. This is due to the reinforcing steel and the additional water required to make the concrete flow around the steel bars. When moisture reaches the steel, it will rust and the expansion caused by the rust will crack the concrete, resulting in an unsightly structure and necessary repairs. In all structures exposed to the weather the reinforcing steel must be carefully placed and well secured so that it cannot be displaced while concreting. No metal should project to the surfaces. Small wires will soon cause rust spots on the surface of the concrete if they are exposed.

Concrete, to be durable, must be made of good materials, uniform in quality, mixed with a minimum amount of water, and properly placed and protected while curing. Concrete exposed to sea water and the rise and fall of water levels, especially in cold climates where ice forms on the structures, requires special attention in the selection of the cement, aggregates, mixing, placing and curing.

With the use of dense aggregates the proportions which will produce the densest products are generally those which contain the maximum amount of coarse aggregate and still contain enough fine aggregate to produce a smooth surface. With porous aggregates used in the production of light weight units, the amount of material in the mix passing a 50-mesh sieve is generally limited and in addition more of the coarse aggregate is used to produce a unit of less density and lower weight. This is generally desirable for light weight units except where fire resistance or watertightness are important.





The strength of plain concrete depends upon the quality of the cement, the strength and character of the aggregate, the quantity of cement in a unit of volume, and the density of the concrete. Other things being equal the strongest concrete is that containing the largest amount of cement in a given volume of concrete, the strength of the concrete varying directly as the amount of cement. With a given quantity of cement in a unit of volume, the strongest concrete is that in which the aggregates are proportioned so as to give a concrete of the greatest density that is of the greatest weight per unit of volume. The strength of concrete also depends upon the methods used in mixing, upon the care taken in measuring the ingredients, and in mixing and placing the concrete. Concrete exposed to the air hardens more rapidly than protected concrete. The setting of cement is a chemical change brought about by the addition of water to the cement, the strength increasing very rapidly the first few days, after which the mixture slowly hardens and increases in strength.

Concrete has poor elastic and tensional properties, but it is strong in compression. Its tensile strength is only one-tenth of its compressive strength. The compressive strength of plain concrete varies between wide limits, depending upon the cement, the proportions of cement and aggregates, and the methods of mixing, and depositing, and the age.

*Ask your questions to the text*

# IV

# Environmental issues

## Bio-History

Under the influence of our developing civilization the environment has been drastically changed. These changes have given rise to a new milieu to which humanity itself, which has caused these changes, has not adapted. However, in order to survive and to protect the environment, we must now find a way not only to adjust to the chang-

es in the environment, but also to compensate for the deleterious effects of our activities. By establishing close links between biological evolution and human history, we can face the challenges of a new era and create harmonious relations with the environment in order to overcome the serious environmental problems of our times.

Life has been tested in unlimited varieties for millions of years, and the most viable species have survived through the powerful selection of evolution. A major direction for bio-history concerns the interactions between the biosphere and humankind in different historical eras. It also concerns the ways that the environment has influenced the evolution of human civilization and has shaped our societies, present and past. Environmental consciousness in the course of human history can be distinguished by a direct focus on action, the progress of mythology, the philosophical interpretation of the natural world and an integrated conception of the environment.

*Understanding Bio-History — New Perspectives*

Ever since life appeared on Earth, living organisms have engaged themselves in a perpetual process of adaptation to their natural environment, as life comes from and depends on nature. Through this struggle, species have been developing and creating their identities. But the only species that developed extensively enough to become conscious of its bio-environment and provoke alterations through interventions is the human species.

All of human development during the last few thousand years could be interpreted as the result of the struggle for adaptation to the bio-environment. From the most basic needs of survival (water, food, shelter, energy) towards the absolute domination of nature, the human being has been observing, deifying, thinking, understanding, controlling and dominating the world into which he was born. Out of this bilateral exchange, behavioural patterns, culture, experience, knowledge and science have resulted.

The consequences of this millennium-long development have had such a great and sometimes devastating impact on the environment that the conservation and protection of bios has grown into one of the most acute needs at the dawn of the third millennium.

We have to learn from the past, and have to realize that most of the fields of bio-environmental interaction between man and nature





have already occupied the conscious thought or unconscious knowledge in previous times and other cultures.

Protection of nature, the urge to dominate it and to have the choice of decision upon natural phenomena, is to be observed in every human society or culture, independently from its geographical location or chronological appearance. These matters become of an important didactic interest in our times.

The understanding of changing environmental circumstances and of the fluidity of the concept of environmental protection requires the development of a critical appreciation of the numerous influences affecting the interactions between humanity and the environment. Bio-history can be seen as a new promising research direction, of interest both to the scientific community and to the general public. Its aim is to bring history and the sciences closer together, with the intention of constructing long and well-founded perspectives on environmental issues, past and present. As part of an integrated bio-centric education, the main ideas of bio-history need to be promoted worldwide.

*Water **and** the Development of Civilization*

Water is one of the crucial components regulating human life and survival. Regions with either complete absence or threatening abundance of water have obliged men to adapt to this challenging environment and fight systematically and intelligently against aridity or flood. Regions with no rain are very hostile towards human installation. This absence of rainwater can be replaced by the use of irrigation from rivers.

Thus, it is no coincidence that exactly in the cradles of the big rivers, such as the Tigris and Euphrates, the Hindus, the Yellow River (Huang He), the Nile or the Niger, the Amazon and others, human beings proceeded first towards the systematic organization and technical controlling of natural forces. And the first large agricultural civilization have grown out of this challenging, difficult but still very rich environment. The combination of need and opportunity led to high technological and political achievements. People were dependent on the river waters to survive. So they invested huge amounts of human effort into the construction of canals, dams and dikes.

Failure to control natural forces led to immediate disasters or gradual degradation of the environment, including floods, changing

river courses, meagre harvests and famine as a result of excess salt concentration in the soil.

The human need for water is universal, independent from the geographical region or the chronological period in cause. Myths concerned with this basic need are widespread in various cultures, testifying this major reality of human life.

Rivers are indispensable, life-ensuring natural elements. On riverbanks human settlements experienced the slow development from Palaeolithic toTSfeolithic agrarian societies. The river provides food, essential quantities of water and the possibility to travel.

In the Balkan region, some of the oldest human settlements are systematically identified near rivers. The oldest Neolithic settlement ever excavated and the oldest conserved wooden boat are dated back to the 4th millennium B.C.

In Central Europe, the Danube has always been a cultural liaison between distant nations, and the wealth produced by the river is not negligible. One of the most ancient Stone Age figurines representing an obese woman, the so-called Venus from Willendorf in Austria, has been found on the northern banks of the Danube, in the environs of Vienna. This is only one example of the fertility cults developed near the life-giving rivers. Similar evidence comes from the east, showing how widespread between the Middle East and Europe this Stone-Age fertility cult was.

Rivers have been deified, connected with myths, stories about mermaids or ghosts. The river is something man has to traverse; it is a passage of some kind. The very ancient feeling of respect man experiences for this vital natural element has led to the development of superstitions and beliefs.

One of the most famous is the Homeric description of Odysseus' visit to the underworld, where he navigated the underworld Acheron River in Epirus. The ancient Greeks believed that the passage to the world of the dead leads through this river, controlled by the boat pilot. The dead had to be equipped with the so-called danake, often put in the mouth of the dead, in order to pay for transport across the river.

*Food and Nutrition—Defining Cultural Identity and Social Structure*

Without any doubt, people were always preoccupied with the quality of food consumed. This is an essential prerequisite for health,





and dietary attention is not restricted to our modern over-consuming societies. Whether we consider the staple crops common in each continent, or the transition from foraging to farming, or religious restrictions concerning food preparation or consumption, we realise that a bio-historical investigation of human culture is very intensely connected to nutritional matters. Nutrition is a basic element of cultural identity, and it influences the way of living, social structure (large-scale agriculture engenders centralised urban societies as opposed to nomadic hunters), and health.

In 1999, a very original exhibit was organised at the National Archaeological Museum in Athens, Greece, as a result of an exemplary international and interdisciplinary collaboration. Through bioarchaeological, zoological, anthropological, and archaeological analyses, the nutritional backgrounds of two major cultures which flourished in Greece during the second millennium B.C. were examined: the Minoans in Crete and the Myceneans, who inhabited many regions in continental Greece.

The study began with the examination of ceramic artefacts, the clay vessels used for the preparation and consumption of food. Organic remains on the clay sherds were analysed. The results of the analysis were astonishing, proving that every single examined sherd revealed some kind of information about the products it had once contained. Thus, through chemical analysis, long speculated theories about the nutritional habits of early societies would be checked and re-examined upon a purely scientific basis. In addition, skeletal remains from 227 tombs and various sites were examined, in search of the protein content of diet (stable isotope analysis). As a result, a generally held theory about Bronze Age diet, that meat was reserved for high days and holidays, has been disproved. All Bronze Age results indicate that Minoans and Myceneans had diets rich in animal protein. This has been shown for surprise was that the population buried in the cemetery of Armenoi in Central Crete was not eating fish. A Neolithic bowl from Cave Gerani in Rethymnon contained vegetable stew.

Honey was used as a sweetener for drinks. Wine was resinated, sometimes with pine resin, proving that the Greek retsina is more than 3,500years old. Mixed fermented beverages (wine, beer and mead) have been attested for both Crete and the Mainland. Perfume

industries have been traced, using oil of iris, an extremely valuable product even today.

The production of olive oil in Crete, the consumption of meat, leafy vegetables, fruit, olive oil, stew, lentils in various palatial settlements of Crete and of pork, cereals, pulses and honey at Mycenaean Thebes, are revealed by the analysis of the sherds. This information can be compared to iconographic representations or references in later texts — like Homer — and contribute towards a lively bioar-chaeological examination of the organic past of these major European civilizations.

*Cultural Evolution and Bios*

Concerns about human cultural evolution were first expressed through literary studies, as most of the sciences searched for their scientific forerunners and "godfathers" in the literary treasures of the distant classical or more recent past.

During the 19th century, out of the movements of neo-classicism and romanticism and in combination with the military expeditions of European countries into the regions of ancient civilizations of the Mediterranean and the Middle East, new branches of humanitarian sciences were born, such as Classical Archaeology, Egyptology, Oriental and Eastern Asian Studies or, later, Amerindian studies.

In the first decades of the 20th century dynamic concern was invested in migration studies, so-called "objective history" as an argument for resolving actual geopolitical crises or political theories.

After the Second World War, humanitarian studies again intensively reflected the preoccupations of postwar societies. Social, economic and political studies, sexuality and gender studies, women's studies, and studies of common everyday life in Greek, Roman or Byzantine antiquity or medieval Europe attracted as much attention as some decades ago the highest artistic expression of the various cultural elites, or classical Greek philosophy. Archaeologists no longer reserved their attention to intact, precious, illustrated vases or marble statues, but began to systematically collect and observe with the same attention common clay dishes, traces of human waste or the accidental impressions of leaves or hand-woven baskets on scattered prehistoric utilitarian pottery. History textbooks were rewritten, examining not only the





big events but also the histories of the simple anonymous people and their natural and material environments.

As the modern world we are living in, with its dangers and challenges, has awakened an increased awareness of our natural environment, humanitarian research also started expanding into that direction. During the second half of the 20th century, interest in various aspects of the natural environment in relation to human history has systematically intensified. Today, major reference works on all thinkable subjects are abundant, representing various directions of research and scientific specialisation. Aspects and points of view, analysis systems and methods vary of course considerably, but one common truth does not seem to be contested: the importance of the natural environment for the development of human culture in its various forms cannot be over-stressed. New methods and technologies allow us today to read, observe, collect and extract information about environmental history, which gives us equally pertinent and exact knowledge as ancient texts, inscriptions, iconography or sheer tradition of cultural behaviour, all of which used to monopolise for a long period of time the interest of researchers.

*Industrialization and Population Growth.*

Industrialization and intense population growth have fundamentally altered the relationship between humans and their natural environment. Traditionally nature was seen as a hostile force. It could bring about floods, cold winters, or poor harvests, making life miserable, causing much suffering and even leading to numerous deaths.

Today, it seems that the situation has changed completely. Nature and the environment seem to be at the mercy of our actions and their protection seems to be necessary for future generations.

For the greatest portion of human history, mankind relied on hunting, fishing and gathering of naturally grown fruits and vegetables for its food supply. Only in the last 10,000 years has humanity begun to produce its own food through the planting of crops and the domestication of animals. These developments resulted in a more static population and the emergence of towns and cities. For defensive and later for commercial purposes, people chose to live in close proximity to one another. The emergence of agriculture also coincided with a period of widespread climatic and ecological change.