

*Е. И. Курашвили, Е. С. Михалкова*

# АНГЛИЙСКИЙ ЯЗЫК

*Учебник  
для студентов  
I—II курсов,  
начинающих  
изучение языка  
в техническом  
вузе*

Допущено Министерством  
высшего и среднего  
специального образования СССР  
в качестве учебника  
для студентов высших  
технических  
учебных заведений



**ББК 81.2 Англ-9**

**К 93**

Рецензенты: кафедра иностранных языков Московского института электронной техники (зав. кафедрой — доц. Л. П. Зайцева) и канд. филол. наук доц. Тункель В. Д. (Московский автомобильнодорожный институт)

**Курашвили Е. И., Михалкова Е. С.**

**К 93**    **Английский язык. Учебник для студентов I—II курсов, начинающих изучение языка в техническом вузе: Учебник.— М.: Высш. школа, 1982.—320 с., ил.**

В пер.: 70 к.

Учебник предусматривает интенсивное обучение английскому языку и рассчитан на 120—140 часов. Лексико-грамматический материал подается пошагово в каждом уроке и отрабатывается на речевых упражнениях в лабораторных работах.

Основное внимание уделено выработке у студентов навыков и умений различных видов чтения (просмотрового, поискового, обзорного и т. п.). Учебник предусматривает комплексное применение ТСО и новейших методов обучения (тестирование, работа в парах, самостоятельная работа по ключам).

**К** **4602010000-444**  
**001(01)-82** **150-82**

**ББК 81.2 Англ-9**  
**4И (Англ)**

**Екатерина Ивановна Курашвили**  
**Елена Семеновна Михалкова**

**АНГЛИЙСКИЙ ЯЗЫК**

**Учебник для студентов I—II курсов, начинающих**  
**изучение языка в техническом вузе**

## ПРЕДИСЛОВИЕ

Настоящий учебник английского языка является второй частью учебного комплекса для технических вузов, \* разработанного в соответствии с положениями действующей программы по английскому языку для неязыковых специальностей высших учебных заведений, и предназначается для студентов II—III семестров, начинающих изучение английского языка в вузе. Он может быть также использован на I курсе студентами технических институтов, изучавшими английский язык в школе по неполной программе или продолжающими изучать язык после длительного перерыва. Весь учебный комплекс рассчитан на 120—140 часов аудиторных занятий, а учебник — на 70—80 часов аудиторных занятий.

Настоящий учебник состоит из 16 уроков основного курса по тематике, предусматриваемой программой, и 16 уроков специального курса, подготавливающего студентов к чтению научно-технической литературы по специальности и к устному общению на английском языке в пределах тем, рекомендуемых действующей программой по английскому языку для I—II этапов обучения. Структура учебника предусматривает комплексное построение каждого урока, направленное на работу над отдельными языковыми аспектами а также на развитие навыков в различных видах речевой деятельности. Каждый урок предполагает выполнение студентами традиционных и программированных упражнений, групповую, индивидуальную работу и работу в парах, самостоятельную работу с проверкой по ключу, а также использование технических средств обучения (магнитная лента, диафильм) для работы в аудитории и в звукотехнической лаборатории.

Каждый урок состоит из разделов, предусматривающих работу над грамматикой, расширением потенциального словаря, развитием навыков чтения, говорения, аудирования и письма. Несколько уроков составляют определенный цикл, завершающийся самостоятельным выполнением теста с последующей проверкой его по ключу. В каждом уроке четко разграничены виды заданий, предназначенных для выполнения в аудитории, в лаборатории и дома. Подобная структура учебника позволяет преподавателям унифицировать методику ведения занятий, осуществлять единый контроль, постоянно оценивать успешность процесса обучения.

Весь лексический и грамматический материал учебника отобран на основе статистических данных частотности употребления языковых явлений в научно-технической литературе.

Основная цель учебника — развитие навыка чтения, говорения и слушания — реализуется, с одной стороны, на материале текстов, а с другой, — на системе упражнений, предусматривающих как первичное

---

\* Курашвили Е. И., Михалкова Е. С. Английский язык. Вводно-фонетический курс для студентов, начинающих изучение языка в техническом вузе. М., 1982 г.

закрепление материала, так и развитие предречевых и речевых навыков и умений.

Исходя из конечной цели обучения в вузе — подготовки будущих специалистов к чтению оригинальной научно-технической литературы по специальности, авторы сочли целесообразным основное внимание в учебнике уделить выработке навыков и умений в различных видах чтения, а именно, *детального* чтения, чтения-поиска, чтения-обзора, критического и других видов чтения, что в дальнейшем позволит выпускникам вузов с достаточной гибкостью и скоростью извлекать из текста смысловую информацию.

В каждом уроке учебника представлены два текста — текст А, предназначенный для самостоятельной работы студентов дома, предполагающий детальное, точное понимание читаемого и преодоление при чтении определенных лексических и грамматических трудностей, и текст Б, предназначенный для *ознакомительного* или *поискового* чтения в аудитории, построенный, в основном, на уже отработанном грамматическом и лексическом материале. Значительное внимание в учебнике уделяется развитию навыков устной речи по темам: Жизнь студента, Высшее учебное заведение, Специальность студента, Наша Родина — СССР, Страны изучаемого языка, а также вопросам идейно-политического воспитания студентов в духе интернационализма, патриотизма, гордости за свою родину и за научно-технические достижения страны.

В разделе «Разговорная практика» основного курса представлены микродиалоги и упражнения, предполагающие работу студентов в парах под наблюдением преподавателя, а также проведение «деловых игр» деятельностного характера с мотивированной ситуацией общения. Игровая деятельность повышает эмоциональный тонус учебного процесса, создает предметность речевого высказывания, помогает организовать процесс общения между обучающимися, максимально приближая его к реальному речевому общению.

В техническом курсе разучивание микродиалогов выносятся в лабораторные работы, а разговорная практика построена, в основном, с опорой на тематические логико-смысловые схемы, интерпретирующие смысловое содержание прорабатываемого текста. Предметный план высказывания в таких схемах передается некоторой последовательной цепочкой понятий, вовлекаемых в данную тему, а смысловое содержание, т. е. отношения между понятиями, изображается стрелками, которые раскрывают связи и отношения между этими понятиями и указывают путь изложения высказывания. Такие логико-схематические построения позволяют гибко варьировать формы работы, вовлекая обучающихся в дискуссии «преподаватель — группа», организуя работу студентов в парах (диалог), а также стимулируя монологическое высказывание.

Особое место в учебнике занимают упражнения, направленные на расширение потенциального словаря, на определение новых значений уже известных слов, на опознавание производных слов и слов интернационального словаря. Такие упражнения снабжены ключами и должны выполняться студентами систематически при подготовке к очередному занятию. (Раздел «Словообразование и фразеология»).

Первичная активизация грамматического материала учебника проводится во время аудиторных занятий с последующим выполнением программированных упражнений в звукозаписи, разработанных к каждому уроку учебника и представленных в разделе «Лабораторные работы».

Каждая лабораторная работа содержит упражнения ситуативного



характера для самостоятельной работы с моделями выполнения и звуковыми ключами для самокоррекции и может быть выполнена как с использованием магнитофона, так и (в случае отсутствия звукотехнической лаборатории в вузе) по моделям без использования звукозаписи.

Лабораторные работы органически связаны с лексико-грамматическим материалом изучаемых уроков и обеспечивают выработку автоматизированных навыков опознавания и владения изучаемыми языковыми формами и структурами.

Наличие моделей и ключей к упражнениям создает для студента дополнительную возможность организации правильной тренировки перед каждым занятием.

К учебнику прилагаются ключи к лексико-грамматическим упражнениям и тестам, краткие фонетический и грамматический справочники, представленные в виде сводных таблиц, а также поурочный словарь-минимум.

Учебник английского языка в комплексе с вводно-фонетическим курсом успешно прошел экспериментальную проверку в Московском инженерно-физическом институте, в филиале МИФИ в городе Обнинске, в ряде групп Московского автодорожного института и Московского института электронной техники.

Авторы выражают глубокую благодарность кафедре Московского института электронной техники и доц. Тункель В. Д. за ценные замечания при рецензировании рукописи учебника.

При большой взаимной помощи авторы работали над следующими разделами: Е. И. Курашвили — Грамматика; Словообразование и фразеология; Чтение; Разговорная практика; Е. С. Михалкова — Лабораторные работы; Домашние упражнения; Разговорная практика.

## РЕКОМЕНДАЦИИ ПРЕПОДАВАТЕЛЮ

Материал урока должен отрабатываться за два часа аудиторных занятий и в процессе самостоятельной работы студента при подготовке к очередному занятию.

### *Примерный план занятия*

1. Активизация лексико-грамматического материала урока; проверка домашних заданий и выборочная проверка лабораторной работы на упражнениях более творческого характера.

2. Работа над упражнениями раздела «Словообразование и фразеология».

3. Проверка понимания текста А: беседа по содержанию текста, выполнение послетекстовых упражнений, проверка техники чтения и выборочный перевод предложений, представляющих лексические или грамматические трудности.

4. Работа над текстом Б (выполнение заданий к тексту).

5. Разговорная практика.

6. Введение и первичное закрепление грамматики нового урока.

### *Рекомендации по записи лабораторных работ*

Длительность лабораторных работ не должна превышать 18—25 минут. Упражнения имитационного характера записываются на магнитную ленту с паузой для повторения заданного образца студентом.

Основная часть упражнений записывается по схеме: диктор (стимул) — студент (выполнение) — диктор (ключ) — студент (самокоррекция). Длительность паузы для выполнения должна быть приблизительно в два — два с половиной раза больше длительности стимула.

В лабораторные работы желательно также включать фонограммы текстов (или отрывков текстов) учебника для чтения во время пауз за диктором или синхронно с диктором предложений текста, а также фонограммы небольших текстов для аудирования (0,5—1 мин. звучания).

Аудиотексты должны быть разнообразными и интересными по содержанию, динамичными по структуре, содержать не более 3—4% незнакомой лексики. Текст рекомендуется предъявлять однократно с четко сформулированной задачей прослушивания.

## РЕКОМЕНДАЦИИ СТУДЕНТАМ

Успех работы будет зависеть в первую очередь от систематичности ваших занятий. Особенностью данного интенсивного курса обучения является то, что каждый последующий урок построен на материале предыдущих уроков, и поэтому требуется строгая последовательность в изучении и усвоении материала.

Предлагаемый лексический минимум подлежит активному усвоению, так как он станет основной лексической базой для чтения научно-технических текстов по вашей будущей специальности.

Успех работы в немалой степени будет зависеть и от вашей активности при выполнении лабораторных работ, ибо известно, что только многократно проговоренный материал оставляет прочный след в памяти.

Авторы рекомендуют готовиться к очередным занятиям в определенной последовательности:

1. Проработать грамматический материал урока.
2. Выписать в тетрадь и выучить новые слова текста.
3. Проработать раздел «Словообразование и фразеология».
4. Ознакомиться с содержанием текста А.
5. Выполнить лабораторную работу.
6. Детально проработать текст А и выполнить послетекстовые упражнения урока.
7. Выполнить домашние упражнения.

Желаем успеха в вашей работе,

*Авторы*

# I. FUNDAMENTAL COURSE

## Unit One

### (1) GRAMMAR. СТРУКТУРА БЕЗЛИЧНОГО ПРЕДЛОЖЕНИЯ

1. Английские безличные предложения всегда начинаются с грамматического вводящего подлежащего **it**. Например: **It is cold.** — *Холодно!* **It is interesting!** — *Интересно!* **It is difficult to help him.** — *Трудно помочь ему.*

	It	is cold.	
Is	it	— cold?	Yes, it is. (No, it isn't.)

Глаголом-связкой в таком предложении могут выступать также такие глаголы, как **to get**, **to become**, **to begin**.

		It $\left. \begin{smallmatrix} \text{gets} \\ \text{becomes} \end{smallmatrix} \right\}$ cold	in autumn.	
	Does	it $\left. \begin{smallmatrix} \text{get} \\ \text{become} \end{smallmatrix} \right\}$ cold	in autumn?	Yes, it does. (No, it doesn't.)
When	does	it $\left. \begin{smallmatrix} \text{get} \\ \text{become} \end{smallmatrix} \right\}$ cold?	—	In winter.

Такую же структуру имеют и безличные предложения типа **It rains/snows.** *Идет дождь/снег.*

		It rains/snows	in spring.	
	Does	it rain/snow	in spring?	Yes, it does. (No, it doesn't.)
When	does	it rain/snow?	—	In spring.

It is		raining.	
Is	it —	raining?	Yes, it is. (No, it isn't.)

**Упражнение.** Переведите следующие предложения на английский язык по моделям:

**Model 1:** *Темно.* → **It is dark.**

1. Светло. 2. Жарко. 3. Прохладно. 4. Тепло. 5. Интересно. 6. Важно знать это. 7. Трудно спрашивать об этом. 8. В ноябре было холодно.

**Model 2:** *Светает.* → **It is getting light.**

1. Темнеет. 2. Становится тепло и светло. 3. Становится прохладно. 4. Становится жарко. 5. Становится скучно.

**Model 3:** *В октябре становится прохладно.* → **It gets (becomes) cool in October.**

1. В июле становится жарко. 2. Светает в 5 часов утра. 3. Когда темнеет? 4. Становится трудно понять это.

**Model 4:** *Снег идет зимой.* → **It snows in winter.**

1. В апреле и мае дождь идет каждый день. 2. В январе часто идет снег. 3. В Англии снег выпадает зимой? 4. Выпадают ли там дожди летом?

**2. Вопросительные предложения со словами: how many? how much? сколько?**

**How many** употребляется с исчисляемыми существительными: **How many people are there in the library? How much** — с неисчисляемыми: **How much time have you got?**

На подобные вопросы можно ответить словами **many (much), a lot (of), lots (of), plenty (of)** в значении «много» и словами **few, little** в значении «мало».

Местоимения **many, much** в утвердительных предложениях должны употребляться со словами **very, so, too** *слишком*. Например: **There are too (so) many people in the library.** В библиотеке *слишком (так)* много людей.

Местоимения **few, little** могут употребляться с неопределенным артиклем со значением «немного, несколько». Например: **There are a few people in the library.** В библиотеке *несколько* человек. **I've got a little time.** У меня есть *немного* времени.

## (2) WORD AND PHRASE STUDY

Английское прилагательное **able** *способный, умелый* и существительное **ability** *способность, умение, ловкость* используются в качестве суффиксов для образования прилагательных и существительных от некоторых глаголов с соответствующим значением «способности к совершению действия». Например: **to change** *изменяться* — **changeable** *изменчивый*; **changeability** *изменчивость, непостоянство (способность к переменам)*.

**Задание 1.** Переведите на русский язык прилагательные. Проверьте правильность перевода по ключу:

- (a) eatable; (б) usable; (в) imaginable; (г) checkable;  
(д) questionable; (е) mistakable

**Задание 2.** Переведите на русский язык производные прилагательные и существительные в правой колонке, образованные от глаголов в левой колонке. Проверьте правильность перевода по ключу:

to observe (наблюдать)	(a) observable; (б) com-
to practise (осуществлять)	fortable; (в) practicable;
to comfort (утешать)	(г) practicability; (д) drink-
to measure (измерять)	able; (е) measurable;
to drink (пить)	(ж) measurability

**Задание 3.** Определите, из каких двух слов состоят следующие сложные слова, и постарайтесь понять их значение. Проверьте правильность понимания по ключу:

- (a) sunshine; (б) raincoat; (в) snowfall; (г) rainfall;  
(д) sometimes; (е) everywhere

## (3) READING 1A

**Задание 1.** Прочитайте текст. Обратите внимание на характерные особенности климата Англии.

### The Climate of England

England is an island country and its territory isn't very large. That's why there is no wide range of climatic conditions in this country. Weather conditions in England are much like those of the Baltic Republics in our country. There are some features common to the climate of this country as a whole: the climate is mild, wet and the weather is changeable.

The weather really very often changes in England. You can seldom have the same kind of weather for a long time.

This is because of the Atlantic Ocean [ˈouʃn]. The winds blowing from the Atlantic are warm and wet. They bring plenty of rain to the island. Summer is generally mild and warm in England though it sometimes happens to be hot but not really very often. More often however sunshine and rain follow each other so many times during the day that it is better not to leave your raincoat at home.

As to winter, it is also generally mild in England. They never have very low temperatures there. However here again we must say about the weather changeability. In winter they have all sorts of weather. Sometimes it rains and sometimes it snows and they also have fog and frost. You can't say that the winter weather is pleasant in England and you often feel really cold there, however they never have much snow and many frosty days there. Winter days are short and it gets dark at four o'clock in the afternoon.

Spring is a lovely season of the year in England, however, they sometimes have really cold days when it is raining and cold winds are blowing from the north.

People everywhere like to talk about the weather, but foreigners are often amused (забавляются) that the English spend so much time discussing the weather. The reason for this is not simply that their weather is interesting, but the English don't like to speak about personal matters (делах) with people who are not friends. That's why a very good beginning for a talk in England is "Isn't the weather nice today?" "Nice and bright this morning!" or "It's good to see the sun again!"

After A. S. Hornby. Oxford Progressive English for Adult Learners.

**Задание 2.** Из предложенных вариантов выберите тот, который соответствует основной идее текста:

a) The weather in England is changeable because there is a wide range of climatic conditions in England. б) There is no wide range of climatic conditions in England but the weather is changeable because of the Atlantic Ocean. в) There is a wide range of climatic conditions in England because of the Atlantic Ocean.

**Задание 3.** Употребите подходящие по смыслу слова из предлагаемых в скобках вариантов:

1. There is (a/no) wide range of climatic conditions in England. 2. There is no wide range of climatic conditions

in England because of (*its small territory/the Atlantic Ocean*). 3. If the weather is the same for a long time we can say that the weather (*is/isn't*) changeable. 4. The winds blowing from the Atlantic Ocean are (*cold/warm*). 5. The climate in England is wet (*because/because of*) the Atlantic Ocean. 6. Wet winds from the Atlantic (*bring/blow*) plenty of rain. 7. English summer is (*seldom/never/often*) very hot. 8. Winter isn't generally (*cold/mild/warm*) in England, however you often feel really (*warm/cold*). 9. Englishmen seldom have (*much/little*) snow and (*many/few*) frosty days in winter.

**Задание 4.** Найдите в тексте английские эквиваленты следующих русских словосочетаний:

что касается зимы; низкие температуры; погода у них бывает разная; морозные дни; идет дождь; повсюду; много раз в течение дня; следуют друг за другом; широкий диапазон; черты, общие для . . . ; страна в целом; одна и та же погода

**Задание 5.** Выпишите из текста наречия с суффиксом *-ly* и укажите исходные прилагательные.

**Задание 6.** Выпишите из текста прилагательные с суффиксом *-y* и укажите исходные существительные.

**Задание 7.** Заполните пропуски, логически завершив данные предложения:

**Model:** How cold it is in . . . → How cold it is in winter.

1. It is so nice and warm in . . . . 2. We have heavy rains and windy weather in . . . . 3. The sun shines brightly from morning till night in . . . . 4. It sometimes snows heavily in . . . . 5. How hot it is in . . . . 6. Englishmen seldom have sunny days in . . . . 7. The sun rises very early in the North in . . . .

#### (4) READING 1B

**Задание 1.** Прочитайте текст и постарайтесь ответить на вопрос:

Are there Britons in Great Britain?

The Scots are not English. Nor are the Scots British. \*No self-respecting Englishman calls himself a Briton, neither does any self-respecting Scot. \*The words Britain, Briton and British appeared with the Act of Union passed in 1707 which provided that the two Kingdoms (England and Scotland) should be united into one under the name of Great Britain. But the attempt was not successful. The best things

on either side of the border remain obstinately (упорно) English or Scottish. Are Shakespeare and Burns British poets? Is there anyone in the whole world who has ever asked for a British whisky and soda? The two nations of the United Kingdom have each originated from mixed sources racially and historically. Each has developed strong national ['næʃənəl] characteristics which separate them in custom, habit, religion, law and even in language.

After J. A. Tenson, G. A. Voitova. Habits and Ways in Great Britain and the United States. M., 1978.

Задание 2. Ответьте на следующие вопросы:

1. When did Great Britain appear as a state? 2. Do Englishmen/Scots call themselves Britons? 3. What English and Scottish poets are mentioned in the text? 4. Do both nations have the same characteristics?

Задание 3. Объясните, как вы понимаете выделенные слова в тексте и предложения, помеченные звездочкой.

#### (5) CONVERSATION PRACTICE

I. Один из студентов группы вернулся из туристского похода. Его по очереди спрашивают, какая погода была за городом (пользуясь списком прилагательных и глаголов). Победителем считается студент, задавший последний вопрос.

*Прилагательные:* windy, foggy, frosty, cold, warm, cool, rainy, etc.

*Глаголы:* to rain, to snow, to blow, to shine

**Model:** Was it windy? Was it raining?

II. Спросите собеседника о количестве дождливых (холодных, теплых и т. п.) дней в прошлом году. Дайте ответ в соответствии с реальной ситуацией. В ответах пользуйтесь словами *few, a few, no*:

**Model:** sunny days last autumn → *St. A.:* Were there many sunny days last autumn? *St. B.:* Yes, there were very many (No, there were few/only a few/no)

cold days last autumn; windy days last month; rainy days last week; cool days last summer; warm days in December; heavy rains last autumn; pleasant warm days last spring; frosty days in November, foggy days last week

III. Побеседуйте по содержанию текста 1А (работа в парах):

1. Why is there no wide range of climatic conditions in England? 2. What features are common to the climate of



this country as a whole? 3. Why does the weather often change in England? 4. Why is the weather warm and wet there? 5. What do the winds blowing from the Atlantic bring to the island? 6. What is summer/winter/spring like in England? 7. Why do you feel cold in winter in England? 8. What is a very good beginning for a talk with an Englishman?

#### IV. Диалог для работы в парах.

A.: Сегодня холодно и довольно сильный туман, не так ли?

B.: It's cold and rather foggy today, isn't it?

Yes, it is. And quite different from the weather-forecast ['fɔ:kæst].

Да, и совсем не так, как в сводке погоды.

Похоже, что пойдет дождь. Я надену плащ.

It looks like rain. I'm going to put on my raincoat.

What a good idea [aɪ'diə]!

Прекрасная мысль!

### (6) ENJOY YOURSELF

#### Roommates' Talk

— Why are you putting on my raincoat?

— Just to protect your new suit.

---

roommate — товарищ по комнате; just (to) — эд. только для того, чтобы; suit [sɜɪt] — мужской костюм

### (7) HOME EXERCISES

I. Выпишите из таблицы на с. 319 и выучите 4 формы следующих нестандартных глаголов:

to know, to blow, to see, to eat, to speak

II. Заполните пропуски в предложениях, используя *many*, *few*, *much*, *little*, *a few*, *a little*:

1. There are very . . . technical books in our college library. My library is still small. I have got only . . . technical books. 2. Look! There is so . . . snow in the street. There was quite . . . only . . . hours ago. 3. We can't make any tea. There is so . . . tea in the box. 4. We have so . . . friends when we are young and quite . . . when we become old. 5. There are too . . . people here today. I know only . . . of them.

### III. Переведите на английский язык:

1. Поздно. Становится темно. Пора идти домой. 2. Холодно. Идет сильный дождь. Принесите мне, пожалуйста, плащ. 3. В ноябре было довольно тепло и было мало снега. Сегодня морозно, а на улице так много снега. 4. У меня есть немного времени. Давайте пригласим их в кино.— А что идет? — Какой-то новый фильм.

### IV. Напишите 5—6 предложений в ответ на вопрос:

What is the weather like today?

## Unit Two

### (1) GRAMMAR. СТЕПЕНИ СРАВНЕНИЯ ПРИЛАГАТЕЛЬНЫХ И НАРЕЧИЙ

<div> <div>Степень</div> <div>Наречие, прилагательное</div> </div>	Сравнительная	Превосходная
	-er	-est
old  young tall thin big heavy pretty busy	older (elder — о членах одной семьи) younger taller thinner bigger heavier prettier busier	<div> <div>oldest (eldest)</div> <div>the {</div> <div>youngest</div> <div>tallest</div> <div>thinnest</div> <div>biggest</div> <div>heaviest</div> <div>prettiest</div> <div>busiest</div> </div>
as ... as — так(ой) же ... , как not as ... as	than — чем much ... than — значительно ... , чем	the ... of — сам(ый) ... из
Tom is as old as Peter. Peter is not as tall as Tom.	I am older than you are. You are much taller than Tom.	I am the eldest of the family. The youngest and the smallest one is Olga. This is the biggest park I know.

Вопросительное слово **which** *который* употребляется тогда, когда необходимо сделать выбор из двух или нескольких предметов, лиц или понятий. Например: **Which** is larger, a town or a city? **Which** is the busiest street in this town?

## (2) WORD AND PHRASE STUDY

1. В английском языке целый ряд прилагательных имеет суффикс **-al**. В русском языке ему соответствует суффикс **-альный**.

Задание 1. Прочитайте следующие английские слова и дайте их русские эквиваленты:

**radical**, **experi'mental**, **docu'mental**, **ideal** [aɪ'diəl], **pro-fessional**, **co'lonial**, **'moral**, **'normal**, **'vertical**, **ma'terial**, **co'lossal**.

2. Слова **too** и **either** [aɪðə] *тоже, также* употребляются дифференцированно: **too** — в утвердительных предложениях, **either** — в отрицательных. Например: France is a continental country. Belgium is a continental country **too**. England is not a continental country. Japan is not a continental country **either**.

3. Названия океанов, морей, озер и рек употребляются с определенным артиклем. **The Pacific Ocean**, **The Yellow Sea**.

4. Слово **right** *правый* имеет два антонима (противоположных по смыслу слова): **left** *левый* и **wrong** *неправильный (ошибочный)*.

5. **to be covered with** — *быть покрытым чем-либо*

6. **to be called** — *называться*

Задание 2. Прочитайте следующие слова:

**Europe** [ˈjuərəp], **Asia** [ˈeɪsə], **Eurasia** [juə'reɪsə], **America**, **Australia** [ɔ:s'treɪljə], **Africa**, **Antarctic** [ænt'æktɪk], **Earth** [ə:θ], **surface** [ˈsə:fɪs], **ocean** [ouʃn], **the Pacific** [pə'sɪfɪk] **Ocean**, **hemisphere** [ˈhemɪsfɪə], **Cyprus**, **the Mediterranean** [ˌmedɪtə'reɪnjən], **Turkey** [ˈtɜ:kɪ], **the Yellow** [ˈjeləʊ] **Sea**, **the Caspian Sea**

## (3) READING 2A

Задание 1. Прочитайте текст. Найдите в нем определение континента и дайте определение острова/моря/озера/океана.

## The Map of the World

The hand of a compass always points to the north. Opposite the north is the south. If we face the north, the east is to the right and the west is to the left. The Sun rises in the east and sets in the west.

If you look at the map of the world you can see that the greatest part of the Earth's surface is covered with water. There are four oceans on the surface of the earth. The names of the four oceans are: the Pacific Ocean, the Atlantic Ocean, the Indian and the Arctic Oceans. In fact, the four salt water oceans together with fresh water lakes and rivers cover more than 70 per cent of the Earth's surface. The five continents or land areas of the Earth cover a much smaller area; they form only as much as 30 per cent of the Earth's area.

If you are watchful you can certainly see that there is more land in the northern hemisphere than in the southern hemisphere. The names of the five continents are Eurasia (Europe and Asia), Africa, America, Australia and the Antarctic.

A continent is a large part of land in an ocean. And what is an island then? Can you give the definition of an island? Which of them is larger, an island or a continent? Let's try to make some kind of comparison between the continents. Which of the continents is bigger, Africa or Eurasia? Which is the biggest and which is the smallest of the continents? Is Cyprus an island in the Mediterranean Sea? Between which continents does it lie? Do you know what sea lies between the Soviet Union and Turkey? You are certainly right if you say "It is the Black Sea". And where is the White Sea, by the way? Is it in the north or in the south? Do you know where the Yellow Sea is? Is it in the west or in the east? There is also the Red Sea and it lies between Asia and Africa. White, black, red, yellow—all of them are colours. Perhaps, people call these seas by the colour of their water.

The Baikal is a very large body of water. Is it a sea? In case you say "No", you are right. It is a very large lake. Though the Baikal is much larger than some of the seas are, it is a lake because it has no outlet into an ocean and its water isn't salty. The Caspian Sea has no outlet into an ocean either, but people call it a sea and not a lake because of its salty water.

**Задание 2.** Найдите в тексте английские эквиваленты следующих русских слов и словосочетаний:

водный массив; справа; пресная вода; соленая вода; пресноводные озера; часть поверхности земли; по цвету воды; вы правы; выход в океан; если мы обратимся лицом к . . . ; покрыта водой

**Задание 3. Употребите подходящие по смыслу слова из предлагаемых в скобках вариантов:**

1. In the solar system of planets our planet is called the (*surface/area/earth*). 2. The hand of the compass always (*stays/points/happens*) to the north. 3. If we face the north, the west is to the (*right/left*). 4. The Sun (*sets/rises*) in the west. 5. The smaller part of the Earth's surface is covered with (*land/water*). 6. There is fresh water in (*lakes and rivers/oceans and seas*). 7. Land areas form (*70/30*) per cent of the Earth's surface. 8. A(n) (*island/continent*) is a small part of (*earth/area/land*) in a sea or ocean. 9. The Black Sea (*covers/lies*) between (*Europe and Africa/the USSR and Turkey*). 10. Cyprus is a(n) (*sea/lake/ocean/island*). 11. The Caspian Sea (*has/has no*) outlet into an ocean but has (*fresh/salty*) water.

#### (4) READING 2B

**Задание 1. Прочитайте текст быстро, но внимательно за 2 минуты. Постарайтесь понять, кто (из членов семьи) рассказывает о своей семье. Будьте готовы рассказать об этой семье:**

Our family is quite a large one. There are seven of us. I am the eldest of the family. I have got two brothers and two sisters. They are much younger than me and sometimes when I look at them I begin to feel quite old.

The youngest and the smallest of our family is Nelly. We, all of us, call her the baby of the family. She is only five.

Then there are Bob and Peter, the twins. They are twelve and both of them are exactly (точно) as tall as each other and they are so like each other that people can hardly tell one from the other.

\*The two boys are the noisiest boys that I know. \*The house is much quieter, when they are out or at school. \*They think of nothing but football, boxing and fighting (борьба).

My sisters Mary and Nelly are the nicest girls I know. \*They are not as noisy as the boys. \*Boys are always noisier than girls. You can't expect boys to be quiet, can you?

After C. E. Eckersley. Essential English for Foreign Students, 1965.

**Задание 2. Употребите подходящие по смыслу слова из предлагаемых в скобках вариантов:**

1. Girls are always (*noisier/quieter*) than boys. 2. Nelly is the (*eldest/youngest*) of the family. 3. The brother-twins are (*different/the same*) age (возраст). 4. Bob and Peter are (*hardly/exactly*) as tall as each other.

**Задание 3. В предложениях, помеченных звездочкой, найдите все группы «подлежащее — сказуемое», затем переведите эти предложения на русский язык.**

## (5) CONVERSATION PRACTICE

I. Попросите вашего собеседника дать определения или названия следующих географических понятий:

**Model:** *St. A.:* What do we call a lake? → *St. B.:* A body of fresh water which has no outlet into an ocean.

a sea; a continent; an island; the ocean between Europe, Africa and America in the northern hemisphere/in the southern hemisphere; the sea between Europe and Africa; the people who live in the Soviet Union/England/the USA

II. Расскажите текст по следующему плану:

1. The Earth in the solar system. 2. The surface of the Earth. 3. The oceans. 4. The continents. 5. The continental and island countries. 6. The seas.

III. Диалог для работы в парах.

*A.:* Какая сегодня погода?

*B.:* What is the weather like today?

It's bright and nice this morning. It was much colder yesterday.

Сегодня утром ясно и приятно. Вчера было гораздо холоднее.

Да, действительно, очень приятно. Давай пройдемся.

Oh, it's really very pleasant. Let's have a walk.

All right. Come on.

Хорошо. Идем.

## (6) ENJOY YOURSELF

— Do you save money (экономить деньги) for a rainy day (черный день), dear?

— Oh, no! I never do shopping when it rains.

## (7) HOME EXERCISES

### I. Напишите транскрипцию следующих слов:

double, brought, country, loud, group, hollow, ground, labour, touch, pause, trouble, launch, nought, count, young, thought, pound, flow, brown

### II. Выпишите из таблицы на с. 319 и выучите 4 формы следующих нестандартных глаголов:

to think, to bring, to learn, to build, to feel, to spend

### III. Заполните пропуски прилагательными, указанными в скобках, употребляя их в сравнительной или превосходной степени:

1. London is the . . . (*large*) city in Europe and the second . . . (*large*) city in the world. 2. One of the . . . (*fine*) streets of London is Regent Street. We can find the (*big*) London shops there. 3. The Neva is . . . (*wide and deep*) than the Moskva River. 4. The climate of England is much . . . (*mild*) than that of the East European part of the USSR. 5. This colour is . . . (*fresh and bright*) than that one. 6. By the way, which is the . . . (*short*) way there?—First go right, then turn left. There is no . . . (*short*) way than this one.

### IV. Переведите на английский язык:

1. Эта книга толще, чем та книга. Это — самая толстая книга (из всех). 2. Он старше своего брата. Он самый старший в семье. 3. Ее квартира такая же светлая, как наша (квартира). 4. Зимой гораздо холоднее, чем осенью. 5. Становится темнее и темнее. Похоже, что будет дождь. 6. Это лето в Москве было более жаркое, чем в Лондоне.

## Unit Three

### (1) GRAMMAR. СТЕПЕНИ СРАВНЕНИЯ ПРИЛАГАТЕЛЬНЫХ И НАРЕЧИЙ

1) Прилагательные и наречия *good (well)*, *bad*, *many (much)*, *few (little)*, *far* образуют степени сравнения от разных основ.

Исходная форма	Сравнительная степень	Превосходная степень
many (much) few (little) good (well) bad (badly) far as ... as not as ... as	more less better worse farther/further than	the most the least the best the worst the farthest/furthest the ... of

2) Многосложные прилагательные образуют степени сравнения с помощью слов **more, the most, less, the least**. Например: **difficult** *трудный* — **more (less) difficult** *более (менее) трудный* — **the most (least) difficult** *самый (наименее) трудный*.

3) **Far** *а далекий; adv далеко* имеет две формы степеней сравнения. Форма **farther, the farthest** употребляется в прямом смысле (при обозначении расстояния), а форма **further, the furthest** в переносном смысле (в значении «дальнейший»). Например: This is **the farthest** region. Это *самый удаленный район*. **Further** discussion is not needed. *Дальнейшая* дискуссия не требуется.

**Упражнение.** Употребите наречия или прилагательные, указанные в скобках, в сравнительной или превосходной степени:

1. You have got (*much*) time than I have. 2. Your collection of records is (*good*) than mine. 3. My recorder is (*bad*) than yours. 4. Perhaps my recorder is (*bad*) of all. 5. This is a (*good*) opportunity to do it. 6. This is (*much*) important thing for me. 7. I think it is (*little*) important for him.

## (2) WORD AND PHRASE STUDY

**Задание 1.** Прочитайте следующие прилагательные с суффиксом **-able**. Назовите глаголы, от корней которых образованы прилагательные. Переведите прилагательные на русский язык. Проверьте правильность перевода по ключу:

(a) changeable; (б) agreeable; (в) reasonable; (г) imaginable; (д) comparable; (е) representable; (ж) variable; (з) comfortable

**Задание 2.** Прочитайте и постарайтесь понять смысл прилагательных с отрицательной приставкой **un-** и суффиксом **-able**. Проверьте правильность понимания по ключу:



(a) uncomfortable; (б) unreasonable; (в) unagreeable; (г) unanalysable; (д) unanswerable; (е) uncontrollable; (ж) uneatable; (з) unsuitable

### (3) READING 3A

**Задание 1. Прочитайте текст. Обратите внимание на описание климатических условий различных районов нашей страны.**

## The Climate of the USSR

As the Soviet Union is the largest continental country in the world stretching for more than 22,400,000 square kilometers you may find here almost any type of weather that may happen in the world.

Weather conditions in our country differ greatly ranging from the semi-tropical in the south to the semiarctic and arctic in the north and from the very hot and dry climatic conditions of the south-eastern parts of Kazakhstan to the heavy rainfalls of the Baltic Republics. However there is one feature common to the most part of the country and that is a distinct difference between the cold and warm periods of the year.

Winter weather varies widely in the USSR with very mild winter in the southern parts of the country and very low temperatures and much snow in the northern and north-eastern ones.

The climatic conditions in the Caucasus and in the Crimea are most agreeable and quite warm for most of the year. The winters are neither too hot nor too cold there. The weather is usually sunny and warm and suitable for growing many kinds of fruit. In general the climate is wonderful and many people go to those places for vacations.

However the farther north we go the cooler the climate becomes, with more rain or snow. The lowest winter temperatures are registered in North-Eastern Yakutia. Here the mean temperature in January is  $-50^{\circ}\text{C}$  (minus 50 degrees Centigrade) and the coldest is  $-70^{\circ}\text{C}$ .

Spring is a lovely season everywhere and when spring comes to Moscow, it is already summer in the south while in the north it is still winter.

Summer is long and usually very hot in the southern parts of the country; it is much milder and somewhat shorter in the central parts and quite short and rather cool in the

northern ones. The hottest place is Central Asia. Here the mean temperature of the warmest month can go up to more than +30°C (plus 30 degrees Centigrade). The maximum registered in the town of Termez is about +50°C.

Autumn, like spring, has many mild days and comfortable temperatures. However, at the end of autumn there is much rain, the weather gradually gets colder and winter sets in.

**Задание 2.** Найдите в тексте английские эквиваленты следующих русских слов и словосочетаний:

средняя температура; чудесное время года; благоприятна для выращивания; намного мягче; довольно прохладное; погода постепенно становится холоднее; любой тип погоды; в диапазоне от . . . до . . .; чрезвычайно жаркие климатические условия; большая часть страны; в конце осени; чем дальше . . ., тем

**Задание 3.** Дайте русские эквиваленты следующих английских словосочетаний:

differ greatly; features common to . . . ; a distinct difference between . . . ; vary widely; may happen in the world; heavy rainfalls; neither too hot, nor too cold

**Задание 4.** Употребите подходящие по смыслу слова (или словосочетания) из предлагаемых в скобках вариантов:

1. There is a much more distinct difference between summer and winter temperatures in the (*western and north-western/eastern and south-eastern*) parts of our country. 2. The climatic conditions are least suitable for growing many kinds of fruit in the (*north/south*) of our country. 3. The climatic conditions of (*Yakutia/the Baltic Republics/the Crimea*) are least agreeable for rest in winter. 4. High temperatures in summer and low temperatures in winter may happen in (*the Caucasus and Crimea/the Baltic Republics/Central Asia*). 5. The features common to the climate of the Baltic Republics are (*changeability of weather/hot and dry conditions/heavy frosts in winter/heavy rains*).

#### (4) READING (3B)

**Задание 1.** Прочитайте текст за 3 минуты и найдите в нем предложения, в которых объясняются а) причины недостатка воды в Англии; б) пути их устранения.

**Слова для понимания текста:** surprise — удивлять; need — нуждаться, нужда; trouble ['trabl] — беспокойство, забота; store — хранить, запасать; pay — платить

## England Needs More Rain!

By Ken Willson

\*Those who speak much about our rainy weather may be surprised to learn that there are some people in England who want more rain, in fact need it badly. \*We certainly have more rain than many other countries, but we don't get as much as we need.

Two or three weeks in the summer without rain and we have problems. The trouble is partly that the rain falls in the wrong place, partly that we can't store enough of it, and partly that we use much more than we need.

Most of Britain rains fall in Wales and Scotland; it isn't there but in the drier South-East England and Midlands that we need it; of course, we store this water and send it to other parts of the country. Birmingham, for example, the second largest city in England, gets all its water from North Wales. But our reservoirs ['rezəvɔːz] are now a hundred years old and need to be much larger. Both at home and in our factories we use much more water than we did a hundred years ago. It takes 100,000 gallons of water to make one car. \*Factories at least (по крайней мере) pay for the water they use, but in our homes we only pay to have water.

The answer to the problem isn't simple. First, we must find a way of keeping our water clean (чистый). Factories needn't use so much; they must learn to re-use the water. The new reservoirs need building and, because England is small, these need to be in the mouths (устье) of rivers. Finally, we must study new ways of using water from the sea.

From *Moscow News*, 1976.

Задание 2. Найдите группы «подлежащее — сказуемое» в предложениях, помеченных звездочкой, и переведите эти предложения на русский язык.

### (5) CONVERSATION PRACTICE

1. Побеседуйте о климатических условиях нашей страны (работа в парах):

1. What are the winter/summer/spring/autumn conditions in the Crimea/Caucasus/Baltic Republics/Kazakhstan/northern parts of our country/central part of our country?
2. Do the weather conditions remain the same/differ greatly everywhere on the territory of the Soviet Union?
3. In which parts are there semitropical/semiarctic and arctic/dry and hot conditions?
4. In which part of the country do rains fall

most often? 5. In which part of the country are the winters mild/cold and frosty? 6. In which part of the country is the weather most agreeable and suitable for growing fruit/for rest?

II. Расскажите о погодных и климатических условиях того района, где вы живете.

III. Диалог для работы в парах.

A.: Между прочим, какие у тебя планы на каникулы?

I'm going to our college sports camp.

Прекрасно. Погода такая мягкая и приятная в эту зиму! Лучшего места для отдыха не найти. Я тоже планирую поехать туда.

O. K. See you there then.

B.: What are your plans for the vac, by the way?

Я собираюсь поехать в спортивный лагерь нашего института.

That's fine. The weather is so mild and pleasant this winter! You can't find a better place for rest. I'm also planning to go there.

Хорошо. Тогда до встречи там.

## (6) ENJOY YOURSELF

*Mother:* Well, what is Mary doing?

*Jane:* Well, if the ice (лед) is as thick as she thinks, she is skating (to skate — кататься на коньках), but if the ice is as thin as I think, she is swimming (to swim — плавать)

## (7) HOME EXERCISES

I. Прочитайте следующие слова:

hair, chain, cheap, spare, relay, holiday, cause, stalk, chart, breed, cheer, fear, steady, weight, money, dew, blue, ion, bias, road, join, piece, count, couple, brown, sour, special, blow, direction, fusion, emission

II. Выпишите из таблицы на с. 319 и выучите 4 формы следующих нестандартных глаголов:

to come, to become, to make, to tell, to find, to say

III. Ответьте на следующие вопросы:

1. Which of the subjects (предметов) you study do you like most? 2. Which do you find more difficult: physics or

mathematics? 3. Which is more suitable for you: to go to classes in the morning or in the afternoon? 4. Which season of the year do you like best? 5. Which do you like better: light music or the classical one? 6. Which is more available to you: theatre or cinema?

#### IV. Переведите на английский язык:

1. Лето самое чудесное время года. Никогда не бывает теплее и приятнее на свежем воздухе, чем летом. Прошрое лето было довольно прохладным. Было гораздо холоднее, чем обычно. 2. У вас очень плохая работа. В ней так много ошибок. Это самая плохая работа. 3. Это время для меня самое подходящее. Я собираюсь заниматься утром и, поэтому, я не могу прийти раньше. 4. Аня самая младшая в семье. Все (everybody) очень любят ее. Она самая спокойная (quiet) и смешная (funny) из всех. 5. Чем больше я читаю эту книгу, тем больше она мне нравится.

V. Напишите 5—6 предложений на тему: *My plans for the vac.* Используйте следующий план:

1. The weather is . . . this winter. It is much colder/warmer than usual. I am going to stay in Moscow/to stay with my family/to go and see my father and mother/to go to some other town/to visit some places of interest/to live in a sports camp/toski [ski:] (кататься на лыжах)/to skate (кататься на коньках)/to watch TV/etc.

## Unit Four

### (I) GRAMMAR. ПРИЧАСТИЕ ПРОШЕДШЕГО ВРЕМЕНИ (THE PAST PARTICIPLE). НАСТОЯЩЕЕ СОВЕРШЕННОЕ ВРЕМЯ (THE PRESENT PERFECT TENSE)

1. Причастие прошедшего времени — причастие II (The Past Participle — Participle II). Все русские страдательные причастия настоящего и прошедшего времени с окончаниями -мый, -нный, -тый (например: *называемый, изготовленный, закрытый*) в английском языке соответствуют 3-й основной форме глагола — Past Participle (Participle II). По способу образования этой формы все глаголы в английском языке делятся на две группы — стандартные и нестандартные.

Стандартные глаголы образуют форму причастия II прибавлением окончания **-ed** к основе инфинитива без частицы **to** (**V-ed**).

Окончание **-ed** произносится:

как звонкий звук [d] после конечного гласного и звонкого согласного звуков — **snowed, rained**; как глухой звук [t] после глухого согласного звука — **liked**; как [ɪd] после звуков [t] или [d] — **visited, needed**.

В односложных глаголах с кратким гласным звуком для сохранения краткости данного звука, конечная согласная буква удваивается. Например: **to stop—stopped**.

Глаголы, оканчивающиеся на букву **y** с предшествующей согласной, меняют **y** на **i** перед окончанием **-ed**. Например: **to study—studied**.

**Задание 1.** Образуйте причастия II от следующих глаголов. Окончание **-ed** звучит как:

[d] — live, open, call, design, examine, listen, change, happen, cover, compare, love, share, answer, wonder, follow, equal

[t] — dance, hope, develop, stretch, place, ask, watch, work, help, hope

[ɪd] — end, visit, rest, start, last, want, point, represent

**Задание 2.** Назовите глаголы, в которых окончание **y** меняется на **i** при образовании формы причастия II:

try, occupy, play, stay, study

**Задание 3.** Назовите глаголы, у которых конечная согласная буква удваивается перед окончанием **-ed** для сохранения краткости предыдущего гласного звука:

hope, step, stop, cool, help, need, thin, open, fog, shop

**2. Функции причастия II в предложении.** Причастие II употребляется в предложении:

1) как определение и может находиться перед определяемым существительным или (чаще) после него. Например: **a limited time** (ограниченное время); **closed windows** (закрытые окна); **the work done** (выполненная работа); **the exercises written today** (написанные сегодня упражнения);

2) для образования сложных глагольных форм времен группы Perfect. Например: **I have written this exercise.**

3) для образования всех времен глагола в страдательном залоге. Например: **The windows are closed.**

**3. Настоящее совершенное время (The Present Perfect Tense).** Если говорящего интересует не время действия, а лишь его результат, т. е. выполнено действие или нет к настоящему моменту, то глагол следует употребить в настоящем совершенном времени, которое образуется с помощью вспомогательного глагола **to have** в форме простого настоящего времени + причастие II смыслового глагола (**have + V-ed**). Например: *The temperature has changed.* Температура изменилась. *I have compared the results.* Я сравнил результаты.

В вопросительном предложении вспомогательный глагол **to have** помещается перед подлежащим. Например:

I (1)	have done (2)	it. (3)	
Have you	— done	it?	Yes, I have. No, I haven't.

В отрицательном предложении отрицание **not** ставится перед смысловым глаголом. Например: *He has not done it.* *He hasn't done it.*

Время действия в таком предложении либо не упоминается вовсе, либо может быть выражено наречиями неопределенного времени: **already** — уже; **yet** — уже, еще; **just** — только что; **lately** — недавно (за последнее время); **ever** ['evə] — когда-нибудь (когда-либо); **never** ['nevə] — никогда

Наречия неопределенного времени обычно ставятся перед смысловым глаголом. Например: *I have never been to the Crimea;* *He has just gone there.* *Have you ever been there?*

Наречия **yet**, **lately** обычно стоят в конце предложения. Например: *I haven't seen my new teacher yet.* *Have you spoken to him yet?* *I haven't been to the library lately.*

Наречия **yet**, **already** в значении «уже» употребляются дифференцированно: **already** — в утвердительных предложениях, а **yet** — в отрицательных и вопросительных. Например: *Have you answered his letter yet?* Yes, I have **already** answered it. (No, I haven't answered it **yet**).

Настоящее совершенное время употребляется также для выражения действия, которое началось в прошлом,

длилось какое-то время и продолжается в настоящем. Например: I have lived in Moscow for 10 years (since 1972).

**Задание 1.** Прочитайте предложения. Внимательно проследите за ситуативным употреблением настоящего совершенного времени в речи. (Помните, что в утвердительном предложении и в полной форме отрицательного предложения глагол *have* не несет ударения, а в общем вопросе и кратком ответе является ударным словом.)

'Have you 'seen the 'new 'engi'neer ,yet? 'No, I 'haven't. I 'haven't 'seen him 'yet. 'Has she ,come? 'No, not 'yet. She 'hasn't 'come ,yet. She 'must be 'here 'soon.

I have 'been 'all 'over the 'Soviet 'Union. I have 'seen a 'lot of 'people. I have 'made 'friends with 'very 'many of them. Now,ever, I have 'never 'been to 'Europe. My 'father has 'been to 'Europe 'many 'times.

**Задание 2.** Назовите номера предложений, в которых форма причастия II является определением:

1. Rain waters have covered most part of the land. 2. The area covered with water at present is suitable to growing fruit. 3. Have you compared these pictures? 4. The letter written is on the table. 5. Have you answered her questions? 6. Yes, I have answered the questions asked.

## (2) WORD AND PHRASE STUDY

1. Префикс *in-* (и его варианты — *il-* перед *l*; *im-* перед *m*, *p*; *ir-* перед *r*) указывает на отрицание, противоположность, отсутствие какого-либо качества (*не*, *без*). Например: *active* — *inactive*, *legal* — *illegal*, *regular* — *irregular*. Встретив слово с этими приставками, ищите в словаре его значение по корню слова. Например: *immortal* (см. *mortal*).

**Задание.** Прочитайте прилагательные в колонке слева и переведите их на русский язык. Дайте английские эквиваленты русских словосочетаний в колонке справа, прибавив к прилагательным префикс *in-* (*il-*, *ir-*):

logical  
effective  
official  
regular  
rational

нерациональный путь, неофициальный визит, нелогичный ответ, нерегулярная работа, неэффективная помощь

2. Десятичные (сотые и т. д.) доли в десятичных дробях в английском языке отделяются от целых чисел не запятой,



а точкой. Например: 9.31 pounds (nine point three one pounds); 5.66 cups (five point double ['dʌbl] six cups).

3. We have had some soup followed by meat and vegetables.— Был какой-то суп, за которым последовало мясо и овощи.

4. В тексте вы встретите названия типичных для английской кухни блюд: porridge — овсяная каша; bacon and eggs — яичница с грудинкой; marmalade, jam — джем; toast — тост (поджаренный ломтик хлеба); sandwich ['sænwɪdʒ] — сэндвич, бутерброд; cookies — домашнее печенье, sweets — сладости.

### (3) READING 4A

Задание 1. Прочитайте текст. Найдите в нем факты, свидетельствующие о своеобразии обычаев англичан в приеме пищи.

#### The Custom of Having Meals in England

The usual English meals are breakfast, lunch, tea, and dinner. Breakfast comes first and is generally a bigger meal than the people have on the "continent", though some English people like a "continental" breakfast of bread and butter and coffee. The usual English breakfast is quite a big one. It includes porridge, bacon and eggs, marmalade or jam, a buttered toast, and tea or coffee. For a change they can have an egg or cheese.

Breakfast is followed by lunch. Englishmen generally have lunch at one o'clock. The working people in London usually find it impossible to come home for lunch and they eat it somewhere away from home. They usually go to a cafe ['kæfeɪ] or a pub. Restaurant ['rest(ə)rɒ:nt] is too much expensive for the working people. Lunch is usually not as big as breakfast. It is generally all kinds of sandwiches ['sænwɪdʒɪz], tea, coffee, milk or juice [dʒu:s].

You can hardly call afternoon tea a meal, it is rather a sociable sort of thing, as friends often come in then for a chat (поболтать) while they are having their cup of tea and some kind of cake. The English drink more tea than any other nation—9.31 pounds per year or 5.66 cups daily per head. A cup of tea is offered as a kind of universal cure (лекарство, средство).

In most English houses dinner is the biggest meal of the day and it comes rather late, when the family gathers at

home after their work. Englishmen usually begin it with soup [su:p] followed by fish or some kind of meat with potatoes or vegetables, then fruit [fru:t] and coffee. In most of the houses this meal is the chief and the last one of the day.

There are few families that have supper in England nowadays, and if they ever have it, it is a much simpler meal than any other. It may be an omelette, or sometimes only bread and cheese, a cup of coffee or some fruit.

After C. E. Eckersley. Essential English for Foreign Students. Book 2.

**Задание 2.** Найдите в тексте эквиваленты следующих русских слов и словосочетаний:

они находят, что невозможно . . . ; обедает вне дома; едва ли можно назвать это . . . ; чаепитие — это скорее повод пообщаться друг с другом; приходят поболтать; чашка чая — это своего рода универсальное лекарство; за завтраком следует ленч; всевозможные бутерброды; в день на душу населения

**Задание 3.** Употребите подходящие по смыслу слова из предлагаемых в скобках вариантов:

1. Supper is the (*first/midday/last*) meal of the day. 2. In most English families breakfast is a much (*simpler/bigger*) meal than supper. 3. The English drink more (*coffee/milk/tea/juice*) than any other nation. 4. Lunch follows (*afternoon tea/breakfast/dinner*). 5. Nowadays there are (*few/plenty of*) families that have supper in England. 6. A "continental" breakfast is (*as heavy/not as heavy*) as the English one. 7. You can (*really/atready/always/hardly*) call afternoon tea a meal.

#### (4) READING 4B

**Задание 1.** Прочитайте текст за 3 минуты. Обратите внимание на различие в привычках у русских и англичан принимать пищу.

### The Russian Custom of Having Meals

\*The Russian custom of having meals certainly varies from family to family, but we generally eat three meals a day. They are breakfast, dinner and supper. Some people have also late afternoon tea.

\*Breakfast generally comes before eight o'clock in the morning, since most people start for work and the children

must leave for school. \*Perhaps, there are few Russian families that have a "continental" breakfast of bread and butter and coffee. Most of the families make breakfast quite a big meal of the day. It usually includes milk, fruit, vegetables, cheese or sausages [ˈsɔːsɪdʒɪz] followed by coffee or tea.

Dinner is the main and the biggest meal of the day. We, Russians, generally eat it somewhere between one and two o'clock. The working people generally eat dinner **away from home** at or near the place where they work. Every factory and office has a dining-room or some kind of a cafeteria [ˌkæfɪˈtɪəriə].

\*We generally plan some meat for dinner or fish for a change. In addition to meat or fish Russian dinner **almost always** includes some soup, potatoes or rice. We generally finish dinner with coffee, tea, milk, or juice.

Supper is the third meal of the day and usually the lightest one. It comes **somewhere** between seven and nine o'clock in the evening. It consists of some sandwiches, fruit or biscuits and tea or milk.

**Задание 2. Употребите подходящие по смыслу слова из предлагаемых в скобках вариантов:**

1. The Russian custom of having meals (*doesn't differ/differs*) from that of the English. 2. The Russians have dinner (*at the same time/earlier/later*) than Englishmen do. 3. The English custom of having (*dinner/supper/lunch/afternoon tea*) at one o'clock (*is quite/isn't quite*) usual for the Russians. 4. In most of the English as well as Russian families supper is the (*lightest/heaviest*) meal of the day.

**Задание 3. Объясните, как вы понимаете выделенные в тексте слова.**

**Задание 4. Найдите группы «подлежащее — сказуемое» в предложениях, помеченных звездочкой, и дайте эквивалентный русский перевод этих предложений.**

## (5) CONVERSATION PRACTICE

I. Студент (ведущий игру) загадывает место (город, страну), где якобы побывал его друг, называя в качестве подсказки достопримечательности, характеризующие данное место. Студент, отгадавший место первым, становится ведущим. Участвует вся группа. Пользуйтесь следующим списком достопримечательностей:

the Sphinx, the Eiffel Tower, the Taj Mahal, the La Scala Theatre, the Great Wall, Big Ben, Scotland Yard, the White House, etc.

**Model:** *St.A.:* Lately a friend of mine has been to a country. He's visited a lot of places of interest. He's seen the Sphinx.

*St.B.:* Has he been to Egypt?

**I. Назовите по-английски все известные вам продукты (фрукты, овощи и пр.). Победителем считается студент, давший последнее название.**

### **III. Диалог для работы в парах.**

*A.:* Как насчет того, чтобы выпить чашку кофе?

A black coffee for me, please.

A как насчет конфет?

No sweets, thanks. Just coffee.

*B.:* How about a cup of coffee?

Мне, пожалуйста, черный кофе.

How about sweets?

Нет, спасибо. Просто кофе.

### **(6) ENJOY YOURSELF**

A man comes into an English restaurant and asks to bring him soup. The waiter (официант) brings it to him. He looks out of the window. The sky is dark and full of clouds. "It looks like rain, sir." "Yes," says [sez] the man tasting (taste — пробовать) the soup. "And it tastes like rain, too."

*Customer (клиент):* Is it tea or coffee? It tastes like kerosene.

*Waiter:* If it tastes like kerosene, it is certainly tea. Our coffee tastes like turpentine (l'tə:pəntaɪn] — скипидар).

### **(7) HOME EXERCISES**

**I. Выпишите из таблицы на с. 319 и выучите 4 формы следующих нестандартных глаголов: *to drink, to get, to meet, to leave, to read, to learn.***

**II. Образуйте прилагательные или существительные с отрицательным значением с помощью префикса *in-* (*il-, im-, ir-*) и переведите полученные производные на русский язык.**

possible, possibility, competent, competence, perfect, operative, rational, rationalism

**III. Заполните пропуски соответствующей формой глагола в настоящем совершенном времени:**

1. read
- offer
- include
2. see
- leave
3. eat
- have
4. bring
5. spend
- be

1. I ... already ... the main part of his paper. He ... some new methods of work in it and ... some interesting results he got. 2. Where is Nick? I ... not ... him since Monday.—He ... for Kiev lately. 3. ... you ... anything since the morning?—I ... just ... breakfast. 4. Who ... these newspapers? I want to look them through. 5. Where ... Nelly ... her vac?—She ... to the Crimea.

#### IV. Переведите на английский язык:

1. Я не хочу идти с вами. Я уже видел этот фильм.
2. Они ждут ваших писем. Вы уже написали им? — Нет. Я собираюсь написать первое письмо завтра.
3. Аня недавно приехала из Минска. Я только что встретил ее.
4. Где Петя и Коля? — Они уже ушли домой.
5. Наступила (пришла) зима. Снег покрыл землю, стало холодно.

V. Ответьте на следующий вопрос, используя для ответа предлагаемые в скобках выражения:

What have you prepared for your next English class?  
*(to prepare Unit 4; to write out and learn the new words; to do some exercises orally and in writing; to prepare Reading 4A).*

## Unit Five

### (1) GRAMMAR. REVISION EXERCISES (ОБЗОРНЫЕ УПРАЖНЕНИЯ)

Задание 1. Прочитайте предложения и назовите употребленные в них глагольные формы. Найдите сказуемые в этих предложениях и назовите исходные формы смысловых глаголов:

1. What have you eaten?
2. I have eaten a buttered toast and a boiled egg.
3. My friend is one of the most interesting men I know.
4. He has lived a very interesting and exciting life.
5. He has been everywhere and has done everything.
6. Has the postman come today?
7. Yes, he has just been here.
8. He has brought a letter.
9. The letter brought is on the table.

Задание 2. Назовите номера предложений в задании 1, в которых причастие II является определением.

## (2) WORD AND PHRASE STUDY

Английские местоимения **the other** и **another** — *другой* употребляются дифференцированно; **the other** подразумевает выбор из двух возможных предметов, лиц и т. п., **another** — выбор из многих возможных. Например:  
1. I have got two friends. One is Tom, **the other** is John.  
2. I don't like this pen. Give me **another** (pen).

Задание 1. Заполните пропуски словами *the other, another*:

1. You must do two exercises. First do this one and then . . . . 2. I don't like this picture. They have some better ones. Let's take . . . . 3. She has two sisters. One of them is eighteen years old, . . . is only thirteen. 4. We have several factories in the town. He works here at our factory, but his son works at . . . factory.

Задание 2. Определите грамматическую категорию и смысл выделенных слов в приведенных ниже предложениях. Проверьте правильность выполнения задания по ключу:

1. They have got a collection of **records**. 2. They **record** pop music. 3. They have got a car and they make **Sunday rides** out of town. 4. He **rides** the car too fast. 5. Can you give me **a ride**? 6. On Sundays we often go **on hikes**. 7. They **hike** a lot about the country.

Задание 3. Переведите на русский язык следующие цепочки слов. Проверьте правильность выполнения задания по ключу:

1) record library; 2) record player; 3) newspaper readers; 4) music lovers; 5) dance music; 6) stamp collectors.

## (3) READING 5A

Задание 1. Внимательно прочитайте текст и найдите в нем описание того вида отдыха, который предпочитаете вы.

### Holidays

In the USSR working people have from two weeks to more than a month of holidays every year. Therefore rest and entertainment have become a very important part of their lives. Naturally, they spend a large part of this free time at home and there are a lot of ways to use this time.

A very popular activity in many families has become sport. Almost any kind of sport is available in big cities

and small towns of the Soviet Union. There are lots of sports clubs everywhere. Young people go in for different kinds of sports: tennis, boxing, football, basket-ball, etc.

But even more than to sports Russian people devote much of their time to different hobbies. Many people are interested in collecting stamps, record libraries and in listening to music at home. There are different kinds of music available on phonograph records: popular songs and dance music as well as symphonies and other classical music. Others are great book lovers. They collect large libraries at home.

The Russians are great walkers. From the first warm days of spring on through summer and into autumn a popular hobby is hiking. On the river banks, in the mountains, in city parks you can see people having picnics or camping. A Sunday ride or a hike out into the countryside has become almost traditional. During long holidays many families take camping trips. They pack their cars with outdoor equipment and spend several days swimming, boating, fishing and hiking. State and national parks are very popular areas for these activities.

Some people take automobile ['ɔ:təməbi:l] trips through different sections of the country. They visit such places as the Baltic countries, Moldavia, the Ukraine, and the Caucasus. Some of them prefer to take a trip through old Russian cities with their unique [ju:'ni:k] architecture.

Other families prefer to spend their holidays visiting large cities. Such cities as Leningrad, Moscow, Samarkand, Erevan and many others attract thousands of tourists ['tuə-rists]. There are also plenty of tourists in Moscow and Leningrad all year round. The tourists visit museums, attend concerts, theatres and other attractions of the big cities.

Holiday trips do not end with the return home. People show pictures of the trip to friends and neighbours ['neɪbəz]. Some time passes and they start making plans for the next summer.

**Задание 2. Найдите в тексте английские эквиваленты следующих русских фраз и словосочетаний:**

круглый год; любой вид спорта доступен; с первых теплых весенних дней и далее в течение всего лета; возвращение домой; существует много способов . . . ; парки — очень популярное место . . . ; воскресные поездки за город; некоторые предпочитают поехать . . . ; молодежь занимается спортом; очень популярное увлечение — туризм

**Задание 3.** Дайте русские эквиваленты следующих английских словосочетаний:

\*music available on phonograph records; a Sunday ride into the countryside; to take a trip to . . .; all year round; a holiday trip; there are a lot of ways . . .; to make plans for . . .

#### (4) READING 5B

**Задание 1.** Прочитайте текст за 3 минуты и ответьте на вопросы:

1. Как англичане предпочитают проводить каникулярное время? 2. Почему они предпочитают эти формы отдыха?

Слова для понимания текста: **pocket money** ['mʌni] — деньги на карманные расходы; **travel** *n* — путешествие; *v* — путешествовать; **pay** — платить

### The British on Holiday

\*Many British people think that it's better not to spend money on a holiday in Britain because the weather is so changeable. They prefer to spend their money on package ['pækɪdʒ] holidays in Southern Europe. A **package holiday** is not a very expensive form of group travel. You pay a travel agent a sum of money and he arranges (организует) flight (перелет), hotel, food and entertainment. \*All you need is pocket money when you get to the **foreign** country. It is sometimes not much more expensive to go to Europe than to stay in England.

That is probably why package holidays are so **popular**. But not everybody likes them. \*Some people say you do not see very much of the country you go to.

However **seaside** holidays in Britain are **still** the most popular and traditional form of holiday for most of the British people. \*Because Britain is quite a small island, **no one** lives **farther** than 75 miles from the sea. As soon as the summer weather begins thousands of people in cars **make their way** to the seaside. The seaside is a place for a family holiday.

**Задание 2.** Объясните, как вы понимаете выделенные в тексте слова.

**Задание 3.** Дайте адекватный русский перевод предложений, помеченных звездочкой.



## (5) CONVERSATION PRACTICE

I. Наступает время отпусков. Спросите вашего друга, чем он увлекается и как он предпочитает проводить свой отпуск. Пользуясь выражениями, приведенными ниже, задайте ему как можно больше вопросов. Победителем считается студент, задавший последний вопрос.

**Hobbies:** collect books/records/stamps; go in for sports; go on hikes; play the piano/the guitar; like walking/fishing/boating, swimming/playing games/reading/watching TV/going to the cinema (theatre) etc.

**Holidays (vacation):** spend holidays (vac) at home/in the countryside/at the sea/in a sports camp/in a holiday home/in a walking tour [ˈtuəl] etc.

### II. Диалог для работы в парах.

A.: У вас есть хобби?  
Если да, то какое?

Music (playing the guitar [ɡɪˈtɑː]/the piano [ˈpjænoʊ]).

Какую музыку вы предпочитаете?

I prefer pop music (light/classical music).

B.: Do you have hobbies?  
If so, what?

Музыка (игра на гитаре/пианино).

What kind of music do you prefer?

Я предпочитаю народную музыку (легкую/классическую).

## (6) ENJOY YOURSELF

**Customer:** Look here, waiter; I have just found a button (пуговица) in my soup.

**Waiter:** Oh, thank you, sir. And I was looking all over the place for it.

## (7) HOME EXERCISES

I. Выпишите из таблицы на с. 319 и выучите 4 формы следующих нестандартных глаголов: *to sit, to begin, to sleep, to mean, to beat, to put*.

II. Заполните пропуски в предложениях соответствующей формой глагола в настоящем совершенном времени или причастием прошедшего времени в качестве определения:

**covered/have covered.** The surface of the earth . . . with waters of the seas and oceans is very large. Spring waters . . . a very large part of the land.

**registered/have registered.** They . . . the temperature. The maximum . . . temperature was +50°C.

**offered/has offered.** The head engineer . . . a new method. The method . . . by him is really very interesting and important.

**left/have left.** I . . . my text-book at college. You must find the book . . . .

### III. Переведите на английский язык.

1. Какие книги вы предпочитаете? — Больше всего я люблю книги об ученых (scientists). 2. Оборудование, полученное в прошлом месяце, необходимо (necessary) для их работы. 3. Вы уже упаковали вещи? — Да. Упакованные вещи находятся в другой комнате. 4. Они уехали в горы. Когда они собираются вернуться? 5. Где ваша семья провела отпуск? — Мы были в спортивном лагере (camp) и только что вернулись. Мы очень хорошо провели время. 6. Кто предложил этот метод? — Я не знаю.

### IV. Ответьте на следующие вопросы:

1. Do you have any hobbies? 2. What is your main hobby? 3. How do you usually spend your free time? 4. Do you like to listen to music? 5. Which music do you prefer? 6. Who is your favourite (любимый) writer or poet? 7. Do you know any English or American writers? 8. Who is your favourite one? 9. What kind of sports do you go in for? 10. Do you go in for hiking?

## Unit Six

### (1) GRAMMAR. СТРАДАТЕЛЬНЫЙ ЗАЛОГ (THE PASSIVE VOICE)

Центром высказывания в английском предложении всегда является субъект действия (подлежащее), который занимает в предложении первое место (1). Когда субъект действия является активным, т. е. действует, сказуемое выражается глаголом в форме действительного залога (Active Voice), а когда действие направлено на субъект, т. е. когда подлежащее является пассивным, сказуемое выражается глаголом в страдательном залоге (Passive Voice). Сказуемое, выраженное глаголом в страдательном залоге, состоит из вспомогательного глагола *to be* в соответствующем времени, лице и числе и причастия II смыслового глагола (*V<sub>2</sub>*).

Время	to be	Причастие II (V <sub>3</sub> )
The Present Indefinite Tense	is (am, are)	covered
The Past Indefinite Tense	was (were)	
The Present Perfect Tense	has (have) been	

Сравните структуру предложения в действительном и страдательном залогах:

Active Voice	Passive Voice
People <b>build</b> new cities. Spring waters <b>cover</b> this area every year. I <b>have done</b> this work.	New cities <b>are built</b> (by people). This area <b>is covered</b> with spring waters every year. This work <b>has been done</b> .

В вопросительном предложении первый вспомогательный глагол помещается перед подлежащим:

	New cities	have been built.		
Have	new cities	been built?	Yes, they have.	No, they have not.

В отрицательном предложении отрицание **not** ставится после первого вспомогательного глагола. Например: The work has **not** been done yet. The letter was **not** sent.

Предложение со сказуемым в страдательном залоге переводится на русский язык чаще всего

а) неопределенно-личным предложением в действительном залоге. Например: New cities **are built**. — *Строят новые города;*

б) Неопределенно-личным предложением с глаголом в страдательном залоге. Например: Some new equipment

is developed in this lab.— В этой лаборатории *разрабатывается* новое оборудование.

**Задание 1.** Назовите номера предложений, в которых сказуемое выражено глаголом в страдательном залоге;

1. Several new office buildings have been constructed in the town lately. 2. They have just constructed the new building for the theatre. 3. The buildings for the hospital and a new department store were constructed two years ago. 4. English is spoken in many countries of the world. 5. The language spoken in Brazil isn't English. 6. Was he invited to come to the office?—Yes, he was. 7. He was offered a very interesting job there. 8. The job offered to him is so interesting! 9. The system used here is of simple construction. 10. The name given to the system is very short. 11. The system was examined yesterday.

**Задание 2.** Назовите номера предложений в задании 1, в которых причастие II выполняет функцию определения.

**Задание 3.** Прочитайте предложения задания 1 с правильным смысловым членением фраз и переведите их на русский язык.

**Задание 4.** Дайте английские эквиваленты русских предложений:

1. Специалистов обучают. 3. Слова учат. 3. Города посещают. 4. Дома строят. 5. Время проводят. 6. Физику изучают. 7. Дверь была закрыта. 8. Книгой пользовались.

**Возвратные местоимения** в английском языке, в отличие от русского, изменяются по лицам, родам и числам. Например:

I ask myself. You ask yourself. He asks himself. She asks herself. It sets itself.	себя	We ask ourselves. You ask yourselves. They ask themselves.
--	------	--

**Усилительные местоимения** имеют те же формы и соответствуют русским местоимениям: *сам, сама, сами* и т. д. Например: Don't write to them. They are soon coming to Moscow themselves.

**Задание 5.** Заполните пропуски соответствующей формой возвратного или усилительного местоимений:

1. Look at . . . , my friend, you look so pale (бледный).  
2. He is very self-critical. He often criticizes . . . . 3. The

moon reflects . . . in the dark water. 4. I know . . . better than you do. 5. The scientists . . . do not understand the problem very well. 6. Don't help us. We can do it . . .

## (2) WORD AND PHRASE STUDY

1. В английском языке имеется целый ряд существительных с суффиксом **-ment**.

**Задание.** Прочитайте следующие английские существительные, образованные при помощи суффикса *-ment* от глаголов *improve* — *улучшать*; *develop* — *развивать*; *equip* — *оборудовать, снабжать*; *achieve* — *достигать* и дайте их русские эквиваленты:

improvement, equipment, achievement, development

2. Обратите внимание на различие в чтении глагола **graduate** ['grædʒueɪt] — *оканчивать высшее учебное заведение* и существительного **graduate** ['grædʒuɪt] — *выпускник, окончивший высшее учебное заведение*.

## (3) READING 6A

**Задание 1.** Внимательно прочитайте текст и выберите из него все предложения, в которых можно найти сведения для характеристики вашего вуза.

### Moscow University

The oldest university in Russia was opened on April 26, 1755. Its history is closely connected with the name of its founder—the great Russian scientist and poet M. V. Lomonosov. At the early days of its history Moscow University was housed in a small building in Red Square. \*There were lecture halls, rooms for studies as well as the first chemical laboratory in Russia founded by Lomonosov.

It is difficult to say in detail about all the possibilities provided by the complex of modern buildings of the University constructed on the Lenin Hills. It is sufficient to say that the main building of the University is 32 stories high and has more than a thousand lecture halls, a great number of rooms for studies, libraries, dining-rooms and other necessary facilities (средства обслуживания) as well. \*A great number of laboratories provided with up-to-date equipment improve the conditions of learning and research. \*The history of Moscow University is connected with the names of the greatest Russian and Soviet scientists who were

its students and graduates. For young men and women Moscow University opens the road to the latest achievements in science, technology and culture, to working on problems that are of much importance for mankind.

Moscow University is a recognized leading centre of Soviet and world science. \*Serious and significant researches are conducted by its scientists and students. Its influence upon world science and education is deep and permanent (постоянный). Today research is becoming increasingly international and Moscow University is steadily widening its contacts with the leading universities in other countries.

**Задание 2.** В предложениях, помеченных звездочкой, найдите все глагольные формы и выпишите сказуемые.

**Задание 3.** Найдите в тексте эквиваленты следующих русских словосочетаний:

трудно сказать; улучшают условия обучения и исследовательской работы; история тесно связана с . . . ; влияние на . . . ; условия обучения и исследований; ведущий центр науки; оснащенных современным оборудованием; путь к новейшим достижениям; постоянно расширяет контакты

**Задание 4.** Употребите подходящие по смыслу слова из предлагаемых в скобках вариантов:

1. Moscow University was (*found/founded*) in 1755. 2. The history of Moscow University is (*provided/connected*) with the name of M. V. Lomonosov. 3. There are a great number of laboratories (*connected/provided*) with the latest equipment. 4. Well-equipped laboratories (*recognize/improve/conduct*) the conditions of learning and research. 5. Moscow University plays an important part in the (*development/equipment*) of Russian science and education. 6. Many world-known Russian poets, writers and scientists were (*the founders of/graduates of*) Moscow University. 7. The great Russian scientist Lomonosov was (*the founder of/a graduate of*) Moscow University.

#### (4) READING 6B

**Задание 1.** Прочитайте текст за 3 минуты. Найдите в тексте ответы на следующие вопросы:

1. Was Isaac Newton the founder of Cambridge University? 2. What University was taken as a model for the University of Cambridge? 3. Who was the founder of the Cavendish Laboratory?

Слова для понимания текста: **century** ['sentʃəri] — век; **degree** — степень, ученое звание; **oral** — устный

The University of Cambridge was founded in the twelfth century and before the beginning of the thirteenth it was almost a recognized centre of education. The University was formed on the model of European continental universities, in particular that of Paris. At first there were neither colleges nor professors in the modern sense of word. Lectures and oral examinations were conducted in Latin. There were no written examinations. Until the fifteenth century the history of Cambridge was not as significant as that of Oxford. But by the end of the seventeenth century the University was the home of Sir Isaac Newton—professor of mathematics from 1669 till 1702 whose influence was deep and permanent. At that time serious tests were offered to the candidates for degrees. During the early part of the nineteenth century examinations were greatly improved and written examinations were more often used than oral.

At the same time there were built a number of laboratories for the natural sciences, among them the Cavendish Laboratory. The Cavendish Laboratory organized by the well-known Scottish mathematician and physicist Maxwell was opened in 1871. It was named after the English scientist of the 18th century Sir Henry Cavendish. Now it is one of the greatest physical laboratories known throughout the world.

**Задание 2.** Прочитайте текст повторно. Перечислите основные вехи в истории Кембриджского университета.

### (5) CONVERSATION PRACTICE

#### I. Уточните у вашего собеседника время действия:

**Model:** *St.A.:* The book has been found. (*an hour ago*) → *St.B.:* When was it found? → *St.A.:* It was found **an hour ago**.

1. The work has been finished. (*some minutes ago*) 2. The exercises have been written. (*in the morning*) 3. The letter has been answered. (*some days ago*) 4. The report has been made. (*on Monday*) 5. This lecture has been discussed. (*last week*) 6. This work has been included into our plan. (*some months ago*) 7. This work has been offered to me. (*last month*) 8. The problem has been solved. (*two minutes ago*)

II. Расскажите о вашем вузе, добавляя информацию к высказыванию предыдущего студента. Победителем считается тот, чье высказывание оказалось последним.

### III. Диалог для работы в парах.

A.: Вы учитесь в институте?

Yes, I am a first-year student.

Какие предметы изучаются на первом курсе?

Physics, maths and some other subjects are.

Когда сдаются экзамены?

Exams are taken twice a year—in summer and in winter.

B.: Are you at college?

Да, я студент первого курса.

What subjects are studied in the first year?

Физика, математика и некоторые другие предметы.

When are exams taken?

Экзамены сдаются два раза в год—зимой и летом.

## (6) ENJOY YOURSELF

Two men have talked for some time in the train (поезд).

"Are you going to professor Brown's lecture this evening?" says [sez] one of them.

"Yes," answers the other.

"Don't go. People say he is a very bad speaker."

"I must go," says the other. "I am Brown."

## (7) HOME EXERCISES

I. Выпишите из таблицы на с. 319 и выучите 4 формы следующих нестандартных глаголов:

to lead, to hold, to stand, to lie, to set, to teach

II. Переведите на русский язык:

1. "Bed and Breakfast" are offered in any English small hotel. 2. These data (данные) were not included into the paper. 3. A lot of periodicals have been got by the library lately. 4. This laboratory is provided with the most modern equipment. 5. The scientists working there are well known in our country as well as abroad (за границей). 6. Researches conducted in the laboratory are usually followed with great interest. 7. In Leningrad there are plenty of places closely connected with the historic days of the October Revolution. 8. Leningrad is visited by lots of tourists coming from different parts of the world.



### III. Переведите на английский язык:

1. Вы должны хорошо выучить новые слова. Эти слова включены в контрольную работу. 2. Он сам усовершенствовал этот метод (method). Данный метод теперь широко используется. 3. Исследование, проведенное ими, является очень важным. Исследование было проведено в срок (on time). 4. Новейшее оборудование, поставляемое этим заводом, является необходимым для нас. В прошлом месяце оно не было поставлено в срок. 5. Она сама имеет большое влияние на своих студентов. Достаточно поговорить с ними об этом серьезно. 6. Много известных ученых было приглашено на эту конференцию (conference).

IV. Заполните пропуски в предложениях таким образом, чтобы получился рассказ о вашем институте:

I am a first-year student at . . . Institute. My college is in . . . street/highway (шоссе) next to the . . . Metro station/bus/tram stop. My college is/is not large. There are lots of/quite a few lecture halls, rooms for studies and laboratories there. Its research laboratories are/are not provided with the most modern equipment. Serious and significant researches are/are not conducted by our college scientists. There are very many/some/no well-known scientists working at our college. My special field is . . . . As a first-year student I am not doing any research yet but I am planning to take part in the research activities of our department next year/in a year/in the third year. I am going to leave college in . . . .

## Unit Seven

### (1) GRAMMAR. REVISION EXERCISES (ОБЗОРНЫЕ УПРАЖНЕНИЯ)

Задание 1. Назовите номера предложений, в которых сказуемое выражено глаголом в страдательном залоге. Прочитайте и переведите эти предложения на русский язык:

1. The Cavendish Laboratory is one of the greatest physical laboratories known throughout the world. 2. The Laboratory was opened in 1871. 3. James Maxwell was appointed the first Cavendish Professor of Experimental Physics at Cambridge. 4. Since its foundation the Cavendish Laboratory has played an outstanding part in training physicists.

**Задание 2.** Заполните пропуски в предложениях соответствующей формой глагола *to make* в действительном или страдательном залоге простого настоящего времени (Present Indefinite):

make (s) — is (are) made

1. Part I of the experiment . . . in the first two weeks of the month. 2. Everyone . . . the same experiment and exercise at the same time. 3. Part 2 of the experiment . . . in the last two weeks of the month. 4. You must . . . the experiment today. 5. The experiments in Part I . . . in Mechanics and Optics Laboratories on the first floor. 6. You may . . . any part you like.

**Задание 3.** Исходя из формы глагола-сказуемого, выберите соответствующее указание времени и определите его место в предложении!

1. She has graduated from a medical college. (*two years ago, already*) 2. Interesting and significant researches have been conducted in our research laboratory. (*at that time, since 1950*) 3. They have improved their equipment. (*last year, just*) 4. Our laboratory was provided with modern research equipment. (*a year ago, just*) 5. A great number of new research laboratories have been constructed in our country. (*ten years ago, since 1970*)

## (2) WORD AND PHRASE STUDY

1. Префикс **un-** придает прилагательным, существительным, причастиям, глаголам и наречиям отрицательное значение или значение противоположного действия. Например: *to pack упаковывать — to unpack распаковывать*.

**Задание 1.** Дайте русские эквиваленты следующих английских словосочетаний. Сверьте свое решение с ключом:

(1) unknown effect; (2) uncomfortable bus; (3) unwritten stories; (4) unusual heat; (5) unpleasant words; (6) unimportant influence; (7) unoccupied seat; (8) unequipped laboratory

**Задание 2.** Дайте английские эквиваленты следующих русских словосочетаний. Пользуйтесь исходными прилагательными в колонке слева:

equal  
suitable  
pleasant  
usual  
necessary

ненужная площадь, неприятный цвет,  
необычная картина, неудобное время, не-  
равные части

2. **boarding-house** *n* — пансион; **lodge** *v* — разместить, (временно) поселить; **residential** *a* — жилой, связанный с местожительством или проживанием (где-л.)

3. **the governing body** — орган управления

4. **undergraduate** *n* — студент последнего курса; **post-graduate** *n* — аспирант

5. **to take a (first) degree** = **to graduate**; **to confer a higher degree** — присваивать ученую степень

### (3) READING 7A

**Задание 1.** Внимательно прочитайте текст. Скажите, какие традиции Оксфордского университета дошли до наших дней.

### Oxford University

There are about 50 universities in Britain nowadays and three of them—Oxford, Cambridge and London are unique [ju(:)'ni:k] universities with several-hundred-year-old history. The first reference to Oxford as a town was made in 912. It's difficult to be certain why the first University was established at Oxford and not elsewhere. Perhaps a variety of factors were important here. The place was far from the centre, the land was cheap and readily available and it was far from the political life of the country. The first reference to the University appears in the 12th century and a century later there were already 1500 students and the University was well-known in Europe.

First there were only about 60 chapels ['tʃæp(ə)] (церковь) and a student was living and studying in one of these chapels learning theology, logic and rhetoric ['retərɪk].

Oxford University of today is a federation of 48 colleges, each largely independent. The word "college" was originally associated with a boarding house for students to lodge. Now some of the British colleges are essentially only teaching institutions while others are residential and teaching institutions at the same time.

The governing body of Oxford University is the Congregation (совет) of 1500 men—the assembly of all the members of the colleges. The Congregation chooses the Council of 24 people. The colleges admit students, organize programs, students' work and residence, laboratories, libraries and term examinations, while the University is in charge of organizing final examinations and confers degrees. Forty col-

leges of 48 admit only men, two colleges are mixed and six colleges are only for women.

A person studying for a degree at a British university is called an undergraduate; one who has taken a degree is called a graduate.

B. A. or B. Sc. stands for Bachelor of Arts, or of Science, the first degree given after a period of 3—4 years of specialised study at a University. M. A. or M. Sc. denotes Master of Arts, or of Science, a higher degree, usually conferred after a year's post-graduate study.

Social changes have certainly transformed Oxford considerably. Some of the traditions have gone in the past. However in spite of all these changes Oxford has not lost its distinctive character.

**Задание 2. Найдите в тексте английские эквиваленты следующих русских словосочетаний:**

земля стоила дешево и была легко доступна; ссылка на . . . ; трудно сказать определенно; каждый в значительной степени независим; является по существу . . . ; отвечает за организацию . . . ; выпускные экзамены; семестровые экзамены; несмотря на эти изменения; отличительные черты; учебное заведение; учебное заведение, обеспечивающее студентов полным пансионом

**Задание 3. Употребите подходящие по смыслу слова из предлагаемых в скобках вариантов:**

1. The first reference to Oxford as a (*town/University*) was made in the 10th century. 2. A college was originally associated with a (*teaching/residential*) institution. 3. (*All/some/none*) of the British colleges are only houses for lodging. 4. The (*University/colleges*) admit students and organize their studies. 5. The University Council is in charge of organizing (*term/final*) examinations. 6. The degrees are conferred by the (*Colleges/University*). 7. (48/40/6/8) Oxford Colleges admit women.

#### (4) READING 7B

**Задание 1. Прочитайте текст за 2 минуты и скажите, какой из заголовков полнее всего отражает содержание текста;**

1. London University.
2. British Universities.
3. Some Aspects of British University Life.

Слова для понимания текста: **law** — право; юриспруденция; **internal students** — студенты дневного отделения; **external students** — студенты заочного отделения; **tutor** — руководитель группы студентов

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

The University of London, for instance, includes internal and external students, the latter coming to London only **to sit for their examinations**. Actually most external students at London University are living in London. The colleges in the University of London are essentially teaching institutions **providing instruction** chiefly by means of lectures, which are attended mainly by day students. The colleges of Oxford and Cambridge, however, are essentially residential institutions and they mainly use a tutorial method which brings the tutor into close and personal contact with the student. These colleges, being residential, are necessarily **far smaller** than most of the colleges of the University of London.

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

**Задание 2. Объясните, как вы понимаете выделенные в тексте слова.**

**Задание 3. Найдите в тексте ответы на следующие вопросы:**

1. What is the difference between colleges in London and Oxford Universities? 2. What subjects are called the "arts"? 3. Is there any difference in the methods of teaching in London and Oxford Universities?

### (5) CONVERSATION PRACTICE

**I. Ответьте на вопросы по содержанию текста 7A (работа в парах):**

1. How many universities are there in Britain? 2. Which of them are unique universities and why? 3. When was the first reference made to Oxford as a town/university? 4. What was/is Oxford University in the past/now? 5. What is the governing body of the University? 6. Who is in charge of organizing students' studies/term exams/final exams? 7. Who has the right to confer degrees? 8. How many Colleges in Oxford admit women?

## II. Расскажите по-английски:

1) о зарождении и развитии Оксфордского университета; 2) о структуре современного Оксфордского университета; 3) о различии в методах обучения в колледжах Лондонского и Оксфордского университетов

## III. Диалог для работы в парах.

A.: Слышно что-нибудь от Елены?

She's taking her finals at university.

Чем она занимается? (Какая у нее специальность?)

She's chosen microbiology as her field.

B.: Any news of Helen?

Она сдает государственные экзамены в университете.

What's her special field?

Своей специальностью она избрала микробиологию.

## (6) ENJOY YOURSELF

### At an Exam

Prof.: Never mind (не беспокойтесь) the date. The examination is more important.

Stud.: Well, sir, I just want to have something right on my paper.

## (7) HOME EXERCISES

I. Прочитайте следующие сочетания слов и постарайтесь понять их значение:

undrinkable water, uneatable fruit, uncomfortable desk, unusable word, unimportant news, unhoused boy, unfriendly look

II. Напишите английские эквиваленты следующих русских словосочетаний:

незаданный вопрос; письмо, оставшееся без ответа; неузнанный человек; нежелательная поездка; невысказанные слова; неустановленный факт (establish)

III. Напишите вопросы к выделенным членам предложения, используя *when, by who(m), with what, where, who, which, what, how many*:

1. Progress is made every day in the world of science.  
2. The University of Glasgo was founded in 1451. 3. Four

exams have been taken by the first-year students. 4. This new method is studied by him. 5. In winter the earth is covered with snow. 6. Television is watched by children during the children's hour. 7. The first question is the most significant. 8. They were met by their friends.

#### IV. Переведите на английский язык:

1. Наш институт был основан почти 50 лет назад. 2. Первое упоминание об институте появляется вскоре после Великой Октябрьской Революции (The Great October Revolution). 3. Сейчас наш институт хорошо известен в нашей стране и за границей (abroad). 4. Многие известные ученые страны были студентами и выпускниками нашего института. 5. Органом управления института является совет института. 6. Институт набирает студентов и отвечает за организацию всей работы студентов. 7. Ученые степени присуждаются ученым советом института (Academic Council). 8. В советских университетах и институтах учебный год (academic year) имеет два семестра.

### TEST ONE

Завершив работу над материалом уроков 1—7 выполните следующие упражнения. Проверьте правильность их выполнения по ключу.

I. Назовите номера английских предложений, соответствующих русскому предложению:

1. Мне предлагают очень интересную поездку.

1) I am offering a very interesting trip. 2) I have offered a very interesting trip. 3) I am being offered a very interesting trip. 4) The trip offered to me is very interesting.

2. Выдвинутая им идея очень интересна.

1) A very interesting idea is proposed by him. 2) The idea proposed by him is very interesting. 3) He is proposing a very interesting idea.

3. Мне только что сказали об этом.

1) I have just told about it. 2) I am just telling about it. 3) I am just being told about it. 4) I have just been told about it.

II. Назовите номера предложений, в которых вы употребили бы наречие yet:

1. А, вы уже пришли! 2. Вы уже слышали последние новости? 3. Да, я уже слышал их. 4. Вы уже дали ответ? 5. Нет, ответа я еще не дал.

III. Употребите подходящие по смыслу слова из предлагаемых в скобках вариантов:

1. Old Russian cities (*attend/admit/attract/appear*) many tourists. 2. Supper is the last (*mean/meal/meat*) of the day. 3. They are far (*away/able/available*). 4. The boy was (*found/founded*) far away from his home. 5. He was (*connected/conducted/conferred*) a degree.

IV. Назовите номера предложений, действие которых вы выразили бы глаголом в настоящем совершенном времени (The Present Perfect Tense):

1. Я давно не видел его. 2. Когда ты видел его в последний раз? 3. Я не видел его с понедельника. 4. Он вернулся из командировки? 5. Да, из командировки он вернулся в прошлую субботу.

V. Откройте скобки и употребите прилагательное или наречие в сравнительной или превосходной степени:

1. My family is (*large*) than your family. 2. I am the (*young*) in the family. 3. Who is (*old*), you or your brother? 4. My friend is two years (*old*) than me. 5. Which film is (*interesting*), this or that one? 6. This is the (*interesting*) film I know.

## Unit Eight

### (1) GRAMMAR. ПРОСТОЕ ПРОШЕДШЕЕ ВРЕМЯ (THE PAST INDEFINITE TENSE)

Если нужно сообщить собеседнику о единичных действиях или фактах, которые произошли (или происходили регулярно) в прошлом, следует употребить в речи простое прошедшее время.

По способу образования этого времени все глаголы в английском языке делятся на две группы — стандартные и нестандартные. Группа стандартных глаголов образует форму простого прошедшего времени прибавлением окончания **-ed** к основе глагола (**V-ed**): to work—I **worked** yesterday; to play—They **played** foot-ball an hour ago; to study—He **studied** English last night.



Список нестандартных глаголов в форме Past Indefinite (V<sub>2</sub>) приведен на с. 319 .

Как стандартные, так и нестандартные глаголы в простом прошедшем времени имеют одну форму для всех лиц единственного и множественного числа: I (you, he, she, it, we, they) **worked yesterday**.

Вопросительная и отрицательная формы образуются с помощью вспомогательного глагола **did** (Past Indefinite от глагола **do**). Смысловой глагол остается в форме Infinitive без частицы **to** (V).

	I (he, she, we, etc.) (1)	worked (2) came (2)	yesterday. (4)	
	Who (1)	worked (2) came (2)	yesterday? (4)	I did.
Did	you (1)	work (2) come (2)	yesterday? (4)	Yes, I did. No, I didn't.
When did	you (1)	work (2)? come (2)?	—	Yesterday.

Для простого прошедшего времени характерно употребление в предложении обстоятельств, уточняющих время действия в прошлом: **yesterday, the day before yesterday, last night (month, week, year, Sunday, etc), a minute ago, a year ago, etc.**

**Задание.** Прочитайте диалог. Обратите внимание на ситуативное употребление простого прошедшего времени в речи;

- Have you seen the new TV play, Steve?
- No, I haven't.
- Did you stay at home last night? The new TV play was so nice.
- No, I didn't. I had dinner at 6 p.m. and went to the cinema. I came home late. Did you stay at home all the evening?
- Yes, all of us did, but Tom and Mike didn't watch TV either. Tom learnt his physics lessons and Mike went to bed early. I went to bed late. I watched the TV programme till midnight.

## (2) WORD AND PHRASE STUDY

1. Английский суффикс **-ic** является распространенным суффиксом имен существительных и прилагательных и соответствует русскому суффиксу существительного **-ик** в словах, обозначающих лицо, **-ика** в словах, обозначающих отвлеченное понятие. Аналогичные русские прилагательные имеют суффиксы **-ический**, **-ичный**.

Задание. Назовите русские эквиваленты следующих английских существительных (а) и прилагательных (б):

а) classic, fanatic, critic, public, panic, logic;

б) artistic, biologic, climatic, seismic, economic, electric, fantastic, metallic, organic, satiric, seismic, elastic, pedantic

2. Русские глаголы *присоединяться* (к кому-либо) и *сомневаться* (в чем-либо) требуют употребления после себя предлога, а соответствующие им английские глаголы **to join** и **to doubt** являются переходными и употребляются без предлога. Например:

He joined this group of tourists. (*присоединился к . . .*)

I doubt it. (*сомневаюсь в...*)

3. Существительное **means** употребляется во множественном числе и означает «средство», «способ». Запомните выражения:

**by means of** — *при помощи, посредством*; **by all means** — *во чтобы то ни стало*; **by no means** — *никоим образом*; **a means of communication** — *средство связи*.

## (3) READING 8A

Задание 1. Внимательно прочитайте текст. Скажите, чем, на ваш взгляд, можно объяснить популярность Джона Блэка в его городе.

### John Black's Life Story

John Black is well-known to everyone in his little town. He is no doubt one of the most interesting persons there. Especially he is popular among children.

John Black is quite an old man. He must be about eighty-five now. He has lived a very interesting and exciting life. He has been almost everywhere and he has done almost everything.

He was born into a large poor family somewhere in Norway. He joined a circus and left home when he was fourteen. He travelled all over Europe. He tried all kinds of jobs. He was a miner (шахтер), a worker at a plant, a docker. As a sailor he went to the Far East and then travelled to the Middle East. He has had a lot of exciting experiences. He has learnt to speak five or six languages.

He can speak French, Arabic, Italian, Chinese and English. He knows a little Greek, too. He has used every means of conveyance [kən'veiəns] including animals. In his travels about the world he has eaten almost everything there is to eat. He says he has eaten lama meat, thousand-year-old eggs and many other things one hasn't even heard of.

In the middle thirties he returned to Europe and fought in an international brigade in Spain, in the forties he struggled against fascists ['fæfists] in France. After the war he moved to Scotland and settled there.

Children like to listen to his stories full of adventures and struggle. They always listen to him with the greatest attention. They could listen to him for hours though they sometimes doubt whether his stories are true for they have never heard so many wonderful and exciting stories from a single man.

**Задание 2. Употребите подходящие по смыслу слова из предлагаемых в скобках вариантов:**

1. "Quite an old man" means the man is (*quiet and old/very old*). 2. "He is no doubt one of the most interesting persons" means (*you can doubt he is an interesting person/he is certainly an interesting person*). 3. When John Black was fourteen years old he (*joined/enjoyed*) the circus.

**Задание 3. Найдите в тексте английские эквиваленты следующих русских словосочетаний:**

он очень старый человек; с величайшим вниманием; они могли бы слушать его часами; рассказы, полные приключений и борьбы; ему должно быть около . . . ; во время своих путешествий по свету . . . ; иногда они сомневаются, произошло ли на самом деле то, о чем он рассказывает; они никогда не слыхали столько удивительных историй

#### (4) READING 8B

**Задание 1.** В английском языке имеется пословица:

Early to bed and early to rise makes a man healthy, wealthy and wise. (healthy — здоровый; wealthy — богатый; wise — мудрый)

Прочитайте текст и скажите, следуют ли данной пословице персонажи следующего текста:

My name is Oleg Romanov. I work at a Research Institute as an electronics engineer. My younger brother has just graduated from Moscow University. He is going to work in the field of electronics, too. As an excellent student he was offered a post-graduate training (аспирантура). He is going to take examinations to post-graduate courses ['kɔ:sɪz] soon. He works hard and is certainly very busy.

There are two kinds of people. Some like to get up early in the morning. Others like to stay in bed late. My brother belongs to the first kind. He gets up early and has enough time to eat a good breakfast and walk to his work. I, on the contrary, like to stay in bed right until the last moment. I do much the same things my brother does but I do them in a hurry. I ran to work not to be late.

Last Friday I couldn't wake up until 8 o'clock. I got up and immediately got dressed. I couldn't eat a good breakfast because I had no time enough. I had to hurry up. I had only milk and a buttered toast. I left my house at 8.45. I was late and didn't get to work until 9.00. I worked all day hard and didn't have lunch in midday. \*There were several telephone calls for me in the morning and some people needed me. I didn't have dinner until 5 o'clock and finished working two hours later that day and I felt bad and couldn't sleep (спать) well that night.

Yesterday, however, I got up early and had enough time to get ready before I went to work. I felt much better all day. I said to myself: "Why don't I do this every day?"

**Задание 2.** Какой из предложенных пяти ответов на вопрос вы бы выбрали?

**Вопрос:** Why did Oleg Romanov finish working two hours later last Friday?

**Отвечая:** 1) Because he received many telephone calls that day. 2) Because he had so much work that he had no time enough to have dinner in the midday. 3) Because he took

examinations to post-graduate courses. 4) Because he woke up only at eight o'clock and was late for his work. 5) Because he felt bad and couldn't sleep well the night before.

### (5) CONVERSATION PRACTICE

I. Задайте как можно больше вопросов о персонаже текста 8А.

*Ask about:* 1) his age; 2) the place he lives in; 3) the place he lived in his childhood; 4) the places he travelled to; 5) the jobs he tried; 6) the languages he speaks; 7) the time he returned to Europe; 8) the struggle he took part in.

II. Один из студентов загадывает имя известного ученого, актера, спортсмена и т. д., в качестве подсказки сообщая его инициалы и область деятельности. Студенты пытаются отгадать имя, задавая вопросы, на которые можно отвечать только «да» или «нет».

*Model:* St. A.: His surname/name starts with . . . . He is well-known in physics/sport/art, etc.

St. B.: Is he . . . ?

III. Диалог для работы в парах:

A.: Какой язык ты изучаешь в институте?

I'm taking English.

А в школе ты тоже изучал английский?

No, I didn't. I began to learn it in the first year at college.

B.: What language are you taking at college?

Английский.

And did you learn English at school too?

Нет. Я начал изучать его на первом курсе в институте.

### (6) ENJOY YOURSELF

The well-known English atomic scientist Rutherford, the discoverer (первооткрыватель) of the atomic nucleus, came to his laboratory late in the evening. One of the pupils was still busy with the instruments.

"What are you doing here so late?" Rutherford asked the young scientist. "I am working," came the proud (гордый) answer. "And what do you do by day?" "Work, of course." "And do you work early in the morning?" "Yes, professor, I work early in the morning as well," the pupil answered proudly. Rutherford looked at him with some pity and asked: "And when do you think?"

## (7) HOME EXERCISES

I. Прочитайте следующие прилагательные с суффиксом *-al*, *-ic* и переведите их на русский язык:

final, principal, industrial, colonial, special, official, actual, natural, cultural, historic, magnetic, symbolic, heroic, cosmic, critical, classical, medical

II. Напишите следующие предложения, заполняя пропуски соответствующей формой глагола в простом настоящем времени:

1. Oleg . . . late yesterday and . . . not time for breakfast. (*get up, have*) 2. We . . . in Moscow during our last holidays and . . . not . . . anywhere. (*stay, go*) 3. They . . . to help Nick with his studies. (*try*) 4. I . . . to the boy but he . . . not . . . me. (*speak, recognize*) 5. . . . your sister . . . from Moscow University two years ago? (*graduate*) 6. When . . . you . . . the subject of your report? (*choose*) 7. The engineer . . . a serious experiment and . . . significant results last year. (*conduct, get*) 8. The sportsmen . . . that they . . . happy to return home. (*to say, to be*)

III. Переведите на английский язык:

Вчера в наш институт приезжала группа английских ученых. Я не видел их, но слышал, что они оставались в институте довольно долго (*long*). Им показали (*to be shown*) новые лаборатории, лекционные залы и аудитории, оснащенные самым современным оборудованием. Они встречались с профессорами, преподавателями (*lecturers*) и студентами нашего института. Несколько студентов приветствовали (*welcome*) их на английском языке.

IV. Ответьте на вопросы:

1. How old are you? 2. Where were you born? 3. Where did you go to school? 4. How old were you when you went to college? 5. What year are you in now? 6. What language did you learn at school? 7. Are you taking English now? 8. Which of the subjects taken at college is your favourite one? 9. Who are you going to become?

## Unit Nine

### (1) GRAMMAR. СОПОСТАВЛЕНИЕ ВРЕМЕН PRESENT PERFECT И PAST INDEFINITE

Present Perfect	Past Indefinite
1. Время действия не указывается: He <b>has graduated</b> from Moscow University.	1. Точно указывается время действия: He <b>graduated</b> from Moscow University <i>in 1978</i> . I saw them <i>in the morning</i> .
2. Время действия указывается неопределенно наречиями <i>just, already, yet, not yet, lately, recently</i> : I haven't finished my work <i>yet</i> .	2. Употребляется в вопросе после слов <i>when, what time</i> : <i>When did you come back home? What time did you go to bed?</i>
3. Обстоятельства времени <i>to-day, this morning/week/month/year, since ...</i> указывают, что период времени начался в прошлом и еще не истек: They have left for Minsk <i>this week</i> . I haven't seen him <i>since Monday</i> .	3. В повествовании перечисляется цепь событий в прошлом: He <b>got up</b> , dressed and had breakfast.

**Способы выражения модальности в простом прошедшем времени.**

1) Способность, умение или возможность совершить то или иное действие в прошлом можно передать с помощью вспомогательного глагола **could** [kud] (Past Indefinite от глагола **can** *мочь*). Например: I **could** speak French but I **couldn't** say a word in English last year. (Я *мог* говорить по-французски, но *не мог* сказать ни слова по-английски).

2) Глагол **must** не имеет формы прошедшего времени и поэтому вынужденное необходимое действие в прошлом может быть передано с помощью глагола **to have** в Past Indefinite в сочетании с инфинитивом с частицей **to**. Например: I **had to** get up early yesterday.— Вчера мне *пришлось* встать рано.

Вопросительная и отрицательная формы от глагола **have** в модальном значении образуются с

помощью вспомогательного глагола **did**. Например: **Did you have to get up early yesterday? I didn't have to go there yesterday.**

**Задание 1.** Прочитайте предложения. При переводе английских предложений следует употребить две временные формы — **Past Indefinite** и **Present Perfect**. Назовите номера предложений, в которых вы употребили бы форму **Present Perfect**. Затем переведите предложения на английский язык:

1. Я просил тебя зайти на почту вчера. 2. Ты была там? 3. Да. 4. Когда ты ходила туда? 5. Я только что вернулась с почты. 6. Ты отослала (to mail) письмо? 7. Нет еще. 8. Я купила конверты (envelopes). 9. Но я еще не написала письма.

**Задание 2.** Прочитайте предложения. Обратите внимание на ситуативное употребление глаголов *can, must* в **Past Indefinite**:

1. Can you speak English?—Yes, I can. I can speak English well now. 2. Could you speak it last year? — No, I couldn't. I couldn't say a word last year. 3. We had classes in the morning yesterday, so I had to get up early. I woke up rather late, so I had to dress as fast as I could. 4. Did you have to take a bus to get to college?—Yes, I did. I had to. (No, I didn't. I didn't have to). 5. She had to write a letter yesterday, didn't she? — Yes, she did. She had to. She had to mail a telegram as well.

## (2) WORD AND PHRASE STUDY

1. Английский суффикс **-fy**, образующий глаголы, соответствует русскому суффиксу **-фицировать**. Например: **classify** — классифицировать.

**Задание 1.** Определите значения следующих глаголов:

**modify, ratify, electrify**

2. Суффикс **-ize** соответствует русскому суффиксу **-изировать, -изовать**. Например: **idealize** — идеализировать.

**Задание 2.** Определите значения следующих английских глаголов:

**synthesize, monopolize, specialize, activize, crystallize, formalize**

3. В английском языке имеется ряд глаголов, относящихся к интернациональной лексике, которые не имеют суффиксов и переводятся на русский язык глаголами с суф-



фиксами *-ировать, -овать*. Например: to annul — аннулировать, to annex — аннексировать.

**Задание 3. Определите значения следующих английских глаголов:**

plan, accompany, combine, comment, condense, correct, deform, distil, press, progress, protest, reform, signal, sort, sum

**4. the Department of Solid State Physics** — кафедра физики твердого тела

**5. Постарайтесь запомнить следующие выражения:**

**to apply to college/university** — поступать в институт/в университет;

**to get into college/university = to be accepted to college/university** — поступить в институт/в университет;

**to graduate** — закончить высшее учебное заведение;

**to graduate from college/university = to leave college/university** — закончить институт/университет.

### (3) READING 9A

**Задание 1. Внимательно прочитайте текст и найдите в нем предложения, в которых говорится о том, как Наталья и Виктор проводят свое свободное время.**

#### The Gurovs

My name is Natalia [nə'teɪlə] Gurova. I'm a post-graduate. I am doing research in the field of radiobiology. Our laboratory studies the effects of radiation on living organisms. I got interested in biology while at school and that's why on leaving school I decided to apply to the Moscow Engineering Physics Institute (MEPhI) and was accepted the same year.

My husband Victor got into college in his native town Lvov. In the third year as he was a very gifted student and was especially good at physics he was offered to move to Moscow and to join the Special Faculty of Physics at our college, the Department of Solid State Physics.

Victor is an extremely able and hard-working person. He's capable of working day and night. And I must admit that sometimes I envy his capacity for work.

Now as a post-graduate student Victor is doing research in quantum electronics and as far as I know he has already obtained some interesting results.

As to me I'm taking my philosophy Candidate's degree exam in a month and both of us are very busy now.

Victor and I have got lots of friends at college. When we have got time enough our favourite occupation is hiking in the country. The countryside around Moscow is really beautiful almost at all times of the year and we are always happy when we can go and spend some time with our friends in the country again.

Unfortunately we seldom find time for going to concerts, to the cinema or to the theatre. At night after a day of hard work I like to read a good book and Victor who's a music lover is often listening to records. He's got a very good collection of records of classical music.

At present we are living with my parents but on completing our post-graduate training we are planning to leave for Lvov to settle there.

**Задание 2. Употребите подходящие по смыслу слова из предлагаемых в скобках вариантов:**

1. A post-graduate is a person (*who does research in the field of radiobiology/in a field of science*). 2. Victor applied to the MEPhI (*on leaving school/after his second/third year at college in Lvov*). 3. Victor was (*offered/accepted to*) the Department of Solid State Physics. 4. Victor (*has just come to Moscow/came to Moscow some years ago*). 5. The Gurovs are post-graduates (*at the same/different department(s)*). 6. Their favourite occupation in free time is (*watching television/going to museums/having friends round/going into the country*). 7. On completing their post-graduate training the Gurovs are planning to (*live in/leave*) Moscow. 8. They are planning (*to settle in Lvov/to leave Lvov*).

**Задание 3. Найдите в тексте английские эквиваленты следующих русских фраз и словосочетаний:**

ему предложили переехать в . . . ; исследование в области . . . ; талантливый студент; люблю почитать хорошую книгу; классическая музыка; влияние радиации на . . . ; почти в любое время года; природа в Подмоскowie; когда я училась в школе; он уже получил интересные результаты; ездить за город; после завершения обучения в аспирантуре; я завидую его работоспособности

#### (4) READING 9B

**Задание 1. Внимательно прочитайте текст следующего письма. Скажите, о какой новой, популярной среди молодежи социалистических стран традиции идет речь?**

My dear friends!

Just think, no more lessons now until September 1. It's pleasant to think that our vacation is starting. We are leaving Moscow for the summer vac tomorrow morning. Last night we had to pack our suits and as it was like usual packing we had to get too many things into too little space.

Tomorrow at 9.00 a.m. our train is leaving Moscow and all our friends will no doubt come to see us off and say good-bye to us. However, our parting will not be long. They are going to join us at the **construction site** not far from Komsomolsk-on-Amur very soon. We are going to take part in the construction of a new gigantic railway (железная дорога).

Work in **construction teams** (строительный отряд) in summertime has developed into a fine tradition and a very popular way of spending the summer vacation among young people. And this is not only in the Soviet Union but in other socialist countries as well. It has become an excellent effective schooling and a labour exam for us young people.

Each summer you can see **young people in green overalls** everywhere. They are members of youth construction teams. This isn't my first work semester and I'm sure I can pass this exam. This year many of the youth construction teams and ours among them devote their active work to the construction of the Baikal-Amur Railway.

This railway is cutting across the whole of Eastern Siberia and the Far East. It **shortens** the way to the ocean by hundreds of kilometres and **links the areas** of the Far East into a single industrial complex. The length of the newly built railway is more than 3,000 km. It is running through areas rich in **raw material** (сырье) **deposits** such as copper (медь) nickel, coal (уголь) and **considerably facilitates** the large-scale construction to develop there.

The Baikal-Amur Railway is a national project. People of different nationalities take part in this construction. The most experienced prospectors and constructors have been sent to work there. But this project is a youth project as well and thousands of young people from all over the Soviet Union come to help to build the railway.

We are looking forward to this event in our life and we are feeling very excited about it. Hope to see you soon.

**Задание 2.** Прочитайте текст повторно. Расскажите о тех преимуществах, которые получают районы Сибири в результате строительства Байкало-Амурской магистрали.

**Задание 3.** Объясните, как вы поняли фразы, выделенные в тексте.

### (5) CONVERSATION PRACTICE

1. Ответьте на вопросы по содержанию текста 9А (работа в парах):

1. What does Natalia Gurova do? 2. What is her special field? 3. What is the subject of her study? 4. What town did Victor start college in? 5. Why did he move to Moscow? 6. What field is he doing research in? 7. What is the Gurovs' favourite occupation in their free time? 8. What is Victor's hobby?

**II.** Студент А. задает вопрос, выясняя причину невыполнения определенных действий в прошлом. Студент В. объясняет, почему он не мог их выполнить.

**Model:** *St. A.:* Why couldn't you ... → *St. B.:* Because I had to ...

go to the cinema last night; get up later; go to college later; miss the seminar; come to our place that evening; leave college earlier; go and see him some other day; show it to him some other time

get up early this morning; go to college at eight; go to the math's seminar starting at 8.45; give a talk there; stay at college till late; wait for my professor; show my paper to him; read my paper the next morning

### **III.** Диалог для работы в парах.

*A.:* Почему тебе пришлось надолго задержаться вчера в институте?

Because I had to prepare for my English class.

Разве ты не мог сделать этого дома?

No, I couldn't. I had to work in the English Laboratory.

*B.:* Why did you have to stay long at college yesterday?

Потому что я должен был подготовиться к английскому.

Couldn't you do it at home?

Нет, я должен был заниматься в ЛУРе.

## (6) ENJOY YOURSELF

### How New Inventions Are Made

"How are new inventions that change the face of the world made?" somebody asked Einstein. "Quite simply," answered Einstein. "Everybody knows that something is impossible. Then, quite by chance, there happens an ignorant man who does not know it and makes the invention."

---

invention *n* — изобретение; by chance — случайно; there happens — появляется; ignorant *a* — невежественный

## (7) HOME EXERCISES

I. Прочитайте следующие глаголы и переведите их на русский язык, не прибегая к помощи словаря:

simplify, specify, intensify, unify, organize, realize, mobilize, neutralize, summarize

II. Уточните информацию, используя для вопроса вопросительные слова в скобках:

1. He learnt English at school. (where) 2. It rained during the night. (when) 3. I've had two cups of coffee. (how many) 4. He knows all the new words. (what) 5. They've used different means of communication (what means) 6. He worked in the Far East for two years. (how long) 7. That was a bread box. (what sort of box) 8. They've finished a Technical School. (what kind of school) 9. He could not come because he did not feel well. (why)

III. Переведите следующие предложения на английский язык:

1. Вы должны были остаться дома? — Да. Я должен был подождать мою сестру. 2. Ваш друг получил письмо? — Да. Он получил его вчера. С понедельника он получил уже три письма. 3. Вы уже видели этот фильм? — Да. Я видел его на прошлой неделе. 4. Наташа аспирантка. Она работает очень много. 5. Когда она окончила институт? — Два года тому назад. 6. Так как они не смогли позвонить Олегу, им пришлось идти к нему на работу.

IV. Ответьте на следующие вопросы:

1. What do you do? 2. When did you apply to college? 3. Were you accepted the same year? 4. What is your special field? 5. In what field are you going to do research at college? 6. When are you going to leave college?

## Unit Ten

### (1) GRAMMAR. ПРОСТОЕ БУДУЩЕЕ ВРЕМЯ (THE FUTURE INDEFINITE TENSE)

Простое будущее время является средством выражения фактов, отдельных или повторяющихся действий, а также последовательности событий, которые произойдут в будущем. Простое будущее время употребляется с такими наречиями как: **tomorrow, the day after tomorrow, in a minute (day, week, etc.), next week (month, year, etc.)**.

Простое будущее время образуется с помощью вспомогательных глаголов **shall** (для 1-го лица единственного и множественного числа) и **will** (для всех остальных лиц) и инфинитива смыслового глагола без частицы **to (V)**.

	I (we)	shall	work	tomorrow.	
Will	you	—	work	tomorrow?	Yes, I shall. No, I shan't.
	You He She They	will	work	tomorrow.	
Will	he	—	work	tomorrow?	Yes, he will. No, he will not (won't).
When	will	he	—	work?	— Tomorrow.

При образовании вопросительной формы в простом будущем времени вспомогательный глагол ставится перед подлежащим. При образовании отрицательной формы отрицание **not** ставится после вспомогательного глагола: **He will not come tomorrow.**

Запомните написание и чтение сокращенных форм:

**he will = he'll**

**he will not = he won't [wount]**

**I shall = I'll;**  
**I shall not = I shan't [ʃənt]**

В современном английском языке наблюдается тенденция употреблять **will** со всеми лицами единственного и множественного числа для выражения готовности (желания) совершить данное действие.

**Задание 1.** Прочитайте отрывки диалогической речи. Обратите внимание на ситуативное употребление простого будущего времени в речи. Помните о восходящем тоне общего вопроса:

- 'Will you 'be 'here to,morrow?
- 'Yes, I 'shall. I'll 'be 'here.
- Will Mary come, too?
- Yes, she will. She'll come, too.
- Will John be in class tomorrow?
- No, he won't. He must be at the doctor's. He won't be here.

**Задание 2.** Прочитайте предложения. Запомните, как следует обращаться к собеседнику с просьбой, приглашением, предложением;

- 'Will you ,help me?
- 'Yes, I'll 'be 'glad to 'help you.
- Will you come to my place?
- Yes, thank you. I'll be glad to come.
- Will you have lunch with me tomorrow?
- I'm sorry. I'll be busy tomorrow.
- Will you meet me downtown?
- Yes, I'll be glad to. I'll meet you at 10 o'clock.

## (2) WORD AND PHRASE STUDY

1. Префикс **re-** указывает:

а) на обратное движение, отклонение, возвращение, удаление и т. д. Например: **to return** — *возвращаться*; **to relax** — *расслабляться*; *уменьшать напряжение*;

б) на повторное действие. Например: **to reproduce** — *воспроизводить*; **to reform** — *реформировать*.

**Задание 1.** Постарайтесь понять смысл глаголов с приставкой **re-** в следующих словосочетаниях. Проверьте правильность понимания по ключу:

1. *to recall* the delegation from the conference; 2. *to re-write* the exercises; *to re-do* the work completely; 4. *to reread* the book; 5. *to reproduce* the picture; 6. *to reconstruct* old towns and cities; 7. *to reflect* the new relations between the two countries; 8. *to resit* an exam

**Задание 2.** Прочитайте следующие интернациональные слова и постарайтесь понять их значение:

course [kɔ:s], mausoleum [ˌmɔsəˈliəm], project, revolutionary [ˌrevəˈlu:ʃnəri], composer, monument, guest [gest], ballet [ˈbæleɪ], congress, chance [tʃɑ:ns], drama [ˈdra:mə], palace [ˈpælis]

2. a fortnight = two weeks

### (3) READING 10A

**Задание 1.** Внимательно прочитайте текст и составьте программу культурных мероприятий для группы преподавателей, прибывающих из-за рубежа для учебы на курсах русского языка.

### Entertainment Programme

Next January a group of college teachers from abroad who are to attend a course of Russian at a winter school arranged at the Russian Language Institute is expected to come to Moscow.

Before studies start the course members will go for an entertainment tour over the country. During the first fortnight of their stay in the country they'll visit Moscow, Leningrad, Tallin and Kiev and return to Moscow to begin their studies at school.

They'll begin their tour of Moscow with a visit to Red Square, the Lenin Mausoleum and a look round the Kremlin's historic monuments and museums. Later they'll visit Moscow University, the Tretyakov Gallery, some Olympic Projects and a lot of other places of interest. They'll be also taken to some memorable places just outside Moscow associated with Russian history, our revolutionary past and our culture. They'll go to Gorki Leninskiye situated quite near Moscow where V. I. Lenin frequently went to rest and relax and where he lived from March 1923 until his death on January 21, 1924. They'll visit Klin—an old Russian town 84 kilometres north-west of Moscow, the home of the great Russian composer Tchaikovsky and the Arkhangelskoye estate—an architectural monument of the 18-19th centuries which is only 16 kilometres out from Moscow on the Volokolamsk highway.

January is a good time for visiting Moscow as its theatre and concert season is in full swing then.

On their first night in Moscow the guests will see a ballet on the stage of the Kremlin Palace of Congresses. Those who



wish will also have a chance to go to the Bolshoi Opera House or to the Moscow drama or circus or to attend concerts at the State Central Concert Hall.

**Задание 2. Найдите в тексте английские эквиваленты следующих русских словосочетаний:**

осмотр; в полном разгаре; достопримечательности; олимпийские объекты; слушатели курса; развлекательная поездка; к северо-западу от . . .; Государственный концертный зал; драматические театры; усадьба в Архангельском

**Задание 3. Назовите по-английски другие достопримечательности Москвы, ознакомиться с которыми вы посоветовали бы гостям столицы.**

**Model:** I think it'll be also interesting to see/to visit . . .

#### (4) READING 10B

**Задание 1. Прочитайте текст за 2 минуты. Назовите по-английски мероприятия культурной программы, разработанной для группы, по дням пребывания в Ленинграде.**

After a week's stay in Moscow the course members are to take a trip over the Soviet Union.

On Friday morning **they will be seen off** to the airport and will fly to Leningrad. It will take them only an hour and a half to get there.

On arrival **they will be met and taken** to the Hotel Intourist situated in the centre of Leningrad. They'll have some time for rest and after dinner **they'll be shown round the city** and will visit some places associated with the history and revolutionary past of this heroic city.

On Saturday morning **they will be offered to visit** the Russian Museum or the Hermitage—these most interesting art and cultural exhibits ([ɪg'zɪbɪt] — выставка).

At six thirty those who wish can go to the Kirov Opera House or go on a walking tour to see this beautiful city at night.

On Sunday morning the group will leave for Kiev.

**Задание 2. Переведите на русский язык фразы, выделенные в тексте.**

#### (5) CONVERSATION PRACTICE

**I. Ответьте на вопросы по содержанию текста 10A (работа в парах):**

1. Where is a course of the Russian language arranged for a group of foreign teachers? 2. Why is the course called 2

winter school? 3. How long will the entertainment tour over the country last? 4. What cities will they visit on their tour? 5. What places of interest will they visit in Moscow? 6. Why is January a good time for visiting Moscow?

II. Ведущий студент загадывает место, которое он собирается посетить во время каникул, указывая в виде подсказки одну из его достопримечательностей. Студент, угадавший место, становится ведущим.

Model. *St. A.*: I shall see the golden Gates in my vac.

*St. B.*: Will you go to Vladimir for your vac?

*Places of interest*: The Donsky Cathedral (собор). The Tolstoy estate, Krestchatic Street, the Winter Palace, Tsiolkovsky's birthplace, Lenin's Birth Memorial, etc.

### III. Диалог для работы в парах.

*A.*: Когда ты уезжаешь домой?

I'm leaving tomorrow morning.

Ты полетишь или поедешь поездом?

I prefer to go by plane. It will take me only two hours to get home.

Тогда до свидания. Желаю тебе всего хорошего. Привет родителям.

Good-bye and thanks for all.

*B.* When are you leaving for home?

Завтра утром.

Will you go by plane or by train?

Я предпочитаю лететь. Мне потребуется только два часа, чтобы попасть домой.

Good-bye then, and all the very best. Remember me to your parents.

До свидания. Спасибо за все.

### (6) ENJOY YOURSELF

"Who's calling?" was the answer to the telephone call.

"Watt."

"What is your name, please?"

"Watt's my name."

"That's what I asked you. What's your name?"

"That's what I told you. Watt's my name."

A long pause and then, from Watt, "Is this James Brown?"

"No, this is Knott."

"Please tell me your name."

"Will Knott."

Whereupon they both hung up.

---

whereupon *cj* — после чего; to hang up (hung, hung) *v* — повесить (трубку)

### (7) HOME EXERCISES

I. Добавьте префикс *re-* к следующим глаголам. Переведите их на русский язык:

equip, build, place, measure, make, set (устанавливать), distribute (распределять)

II. Употребите глаголы в скобках в соответствующей форме Future Indefinite:

1. Tom . . . very busy tomorrow especially in the afternoon. (*be*) 2. What time . . . the girls . . . shopping? (*do*) 3. I . . . not . . . a plane, I . . . by train. (*take, go*) 4. What kind of transport . . . you . . . ? (*use*) 5. We haven't got enough paper. When . . . she . . . some? (*buy*) 6. It . . . about three hours to get there. (*take*) 7. . . . you . . . Leningrad next summer? Yes, we . . . Leningrad and Riga as well. (*visit*)

III. Напишите вопросы, используя вопросительные слова в скобках:

1. We shall do it by all means. (*who*) 2. I shall be at home at 10 o'clock. (*what time*) 3. About twenty members of this commission will come to Moscow next week. (*how many*) 4. They will get a lot of experience there. (*what*) 5. Ann will be very glad to see you because she is waiting for you. (*why*) 6. I shall work hard at my English in summer. (*when*)

IV. Переведите следующие предложения на английский язык:

1. Группа студентов нашего института уезжает в Ленинград на следующей неделе. 2. Вы присоединитесь к этой группе? 3. Какие интересные места они собираются посетить в Ленинграде? 4. Они посетят много мест, связанных с революционным прошлым города. 5. Кто организует эту поездку? — Один из членов нашего профсоюзного комитета (Trade Union Committee). 6. Поездка продлится четыре дня. 7. Предполагается, что они вернутся в воскресенье вечером.

V. Ответьте на следующие вопросы:

1. What is your native town? 2. Can you name any places of interest in your town? 3. What places of interest mentioned in Reading 10A have you visited yet? 4. Will you visit any places of interest in your next vac?

## Unit Eleven

### (1) GRAMMAR. ПРИДАТОЧНЫЕ ПРЕДЛОЖЕНИЯ УСЛОВИЯ И ВРЕМЕНИ

Если действие может произойти только при определенном условии, то придаточное предложение нужно начинать с союзов **if** *если*; **provided** *при условии если*; **unless** *если не* . . . . .

В придаточных предложениях условия простое будущее время (The Future Indefinite Tense) не употребляется; вместо него употребляется простое настоящее время (The Present Indefinite Tense) или настоящее продолженное время (The Present Continuous Tense). Например: **If it is too hot**, we shall spend the time at the river side. **Provided I have** an opportunity, I'll take a trip to the Caucasus. **Unless it is raining** in the morning, we'll go to the country.

Придаточные предложения времени вводятся союзами **when** *когда*, **after** *после, после того как*, **before** *до того как, прежде чем*, **as soon as** *как только*, **until (till)** *до тех пор пока не*.

В придаточных предложениях времени простое будущее время тоже не употребляется; вместо него употребляется простое настоящее время или настоящее продолженное время. Например: **After she finishes** her work, she'll go to the station. She will wait there **until her friends come**. **As soon as they are coming** they will go out onto the platform.

**Примечание:** Союзы **if** и **when** могут вводить не только придаточные предложения условия и времени, но и придаточные предложения дополнения. В последнем случае после них употребляется простое будущее время. Например:

I don't know { **if**  
                  **whether**  
                  **when** } my friends will come.

**Задание 1.** Прочитайте диалоги. Обратите внимание на ситуативное употребление придаточных предложений условия, времени и дополнения в речи. Переведите эти предложения на русский язык:

- Can anybody help him?
- Unless he wants to learn, nobody will be able to help him.

\* \* \*

- I don't know if he will be able to learn anything.
- Unless he studies hard, he won't learn anything.

\* \* \*

- It's difficult to say whether he will like this work.
- Unless he likes his work, he won't do it.

\* \* \*

- If they don't have time, they won't go there, will they?
- I can't say if they will go there.

\* \* \*

- Provided he comes first, will you tell him to wait?
- I doubt if he will come first.

\* \* \*

- Provided you see him, will you kindly speak to him?
- It's difficult to say when I will see him. But if I see him, I'll certainly speak to him.

**Задание 2. Употребите глагол в скобках в форме простого настоящего или простого будущего времени:**

1. I will see him if I (*come*) to Leningrad. 2. If it (*be*) not too cold, I will come. 3. If you have any difficulty, the secretary (*help*) you. 4. Unless it is rainy tomorrow, he (*come*). 5. When I (*see*) him, I will speak to him. 6. Until you (*be*) busy, you can help me. 7. If she (*work*) hard, she will get good knowledge of English. 8. If I (*have*) time, I will help you. 9. If you (*go*) to England, you will be able to practise your English. 10. Provided they (*be*) busy, they will tell you. 11. She will help you unless she (*be*) tired. 12. If you get up early, you (*come*) on time.

## (2) WORD AND PHRASE STUDY

1. Английские суффиксы имен прилагательных **-ive**, **-ative** соответствуют русским суффиксам **-ивный**, **-ативный** (**-ная**, **-ное**, **-ные**). Например: **active** — **активный**; **prerogative** — **прерогативный**.

**Задание 1.** Определите значение следующих словосочетаний. Сверьте свое определение с ключом:

(1) a primitive clock; (2) effective changes; (3) people of great initiative; (4) extensive economy; (5) decorative effect; (6) administrative measures; (7) progressive ideas

**2. The room I'm staying in . . .** — Комната, в которой я остановился . . .

Для английского сложноподчиненного предложения характерно бессоюзное подчинение.

**Задание 2.** В следующих предложениях найдите придаточные предложения и переведите их на русский язык:

1. The book you want is on my desk. 2. I am ready to answer any question you ask. 3. There was one more idea he got interested in. 4. The speech he made was a success.

3. Наречие **hard** *крепко, сильно, энергично* стоит в предложении после смыслового глагола. Например: You must work **hard**. It rained **hard** yesterday.

Наречие **hardly** *с трудом, почти не, едва* обычно предшествует смысловому глаголу. Например: He **hardly** works. He could **hardly** walk.

### (3) READING 11A

**Задание 1.** Прочитайте внимательно текст. В письме к своему другу один из слушателей курсов русского языка Джералд Джонсон пишет о своих впечатлениях о Москве. Скажите, что произвело на него в Москве самое сильное впечатление.

#### A Letter From Gerald Johnson

Room 217, Hotel "Rossiya",  
Moscow, January 3

Dear Alec! The address is rather a surprise, isn't it? Yes, I'm really in Moscow. I've been here for two days. I haven't been busy with my studies at the Institute of the Russian Language yet, however, I've been so busy going about "seeing Russia" that I **have hardly had any time** for writing letters.

Today I want to write about my first impressions of Moscow and Muscovites [mʌskəvɪts]. If you ask me: "What Moscow is in a word?" I'll answer: "Moscow is beauty and history in stone".

Together with some other course members I was met at the airport and taken straight to the hotel "Rossiya". It is Europe's largest hotel situated in the very centre of the city next to the Kremlin. It has about three thousand rooms and can accommodate some 6,000 guests.

The room I'm staying in is extremely comfortable, with air-conditioning and other modern conveniences. From the window of my room I enjoy a marvellous view of Red Square and the Kremlin.

The hotel has several restaurants, a lot of snack-bars and cafés on various floors. So, you needn't search for restaurants at meal time. I could tell you much more about the hotel, it is really wonderful, but the most thing that has impressed me in Moscow are its people. They are very friendly and kind-hearted.

You've certainly heard, Alec, of our Englishman's "reserve", how an Englishman likes "to keep himself to himself", and how on a long trip with four Englishmen you won't be able to speak a word during the whole trip. This isn't the case with the Russians. They prefer sociability though they won't break the ice themselves. You will have to do it yourself. But as soon as you have done it, then see them talk. They will ask you where you have come from, what your job is, how you like Russia and how long you are staying in Moscow. Practically any subject will do—weather, their beautiful city, and their pride—the metro, as they call the tube there, theatre and certainly literature and music. This sociability of the Russians goes along with surprising hospitality. I don't think any door in the world is more open to a stranger than is the Russians'. (*to be continued*)

Задание 2. Употребите подходящие по смыслу слова из предлагаемых в скобках вариантов:

1. In his first letter to Alec Gerald Johnson wanted to write about his (*experience/impressions/adventures*) of Moscow.
2. I was so busy that I have (*hard/hardly*) had any time for writing letters.
3. A reserved person will (*probably/hardly*) make friends with a stranger soon.
4. "Any subject will do" means any subject will (*be good enough/do much good for you*).
5. "This isn't the case with the Russians" means (*this case is not with the Russians/this is not characteristic of the Russians*).
6. (*Reserve/Sociability*) is characteristic of the Englishmen.
7. The course members were taken (*forward/straight/quite*)

to the hotel "Rossiya". 8. The hotel "Rossiya" is (*stated/situated*) next to the Kremlin.

**Задание 3.** Найдите в тексте эквиваленты следующих русских словосочетаний:

впечатления о Москве; общительность русских сочетается с удивительным гостеприимством; вам не нужно искать ресторан; я наслаждаюсь великолепным видом; в самом центре; как любит он замкнуться в себе; как они называют; это не свойственно русским; любая тема подойдет

#### (4) READING 11B

**Задание 1.** Прочитайте текст за 2 минуты и определите основную идею текста.

### A Letter from Gerald Johnson

(*continued*)

\*I've seen and heard so many things that interested me here. I would like to write them down while my impressions are still fresh in my mind.

\*There are so many beautiful and interesting things to see that I can hardly say which is the most beautiful. Perhaps it's Red Square and I'm sending you a picture of it. Don't you think it's lovely? To the Muscovites and many others Red Square is one of the most beautiful places in the world, and I must say it really is.

\*As you walk through Moscow you seem to be living in history, so many things call up events and figures of the past. However, Moscow doesn't live only in the past, you feel here a sense of continuity all through its history. \*I felt very strongly this mixing of old and new when I walked along Moscow streets. \*There is lots more I would like to tell you about Moscow, but that must wait until I see you again.

My best wishes to you,  
Gerald

**Задание 2.** Найдите в тексте фразы, соответствующие переводу:

1) многое напоминает вам о событиях и людях прошлого; 2) здесь у вас появляется ощущение непрерывности всей ее (Москвы) истории

**Задание 3.** В предложениях, помеченных звездочкой, найдите группы «сказуемое — подлежащее» и переведите эти предложения на русский язык.



## (5) CONVERSATION PRACTICE

### I. Ответьте на вопросы по содержанию текста 11А (работа в парах):

1. Where did Gerald Johnson write a letter from? 2. Why didn't Gerald have much time for writing letters? 3. What are Gerald's impressions of Moscow? 4. Where was Gerald together with some other course members taken from the airport? 5. Where is the hotel situated? 6. What view can he enjoy from his room? 7. What can you say about the hotel "Rossiya"? 8. What impressed him most in the Muscovites?

II. Группа студентов разделяется на две команды. Представители группы А. называют какое-то условие, а представители группы В. должны назвать следствие, вытекающее из этого условия, и предложить новое условие. Проигрывает группа, которая не смогла быстро справиться с задачей. Команды могут пользоваться списком слов, приведенных в двух колонках ниже:

Model. A.: If the weather is nasty on Saturday ...

B.: We shall not go on a hike. If we stay at home ...

cold, hot, rainy, lovely,  
fine, windy, snowy, wet,  
etc.

stay at home; go on  
a hike/to the sea-side/into  
the country; work hard;  
rest; do nothing; etc.

### III. Диалог для работы в парах.

A.: Сможет Борис прийти в следующий вторник?

I doubt it. It will take him about five days to get well.

Если завтра занятия окончатся рано, я зайду к нему.

I'll join you, if you don't mind.

Хорошо.

B.: Will Bob be able to come next Tuesday?

Сомневаюсь. Ему потребуется еще дней пять, чтобы поправиться.

If classes are over early tomorrow, I'll call on him.

Я пойду с тобой, если не возражаешь.

All right.

## (6) ENJOY YOURSELF

Mother: It's nine o'clock and you are not in bed. What will father say when he comes home?

Son: Supper. What's for supper?

*He:* A lot of girls will get disappointed when I marry.  
*She:* Well, why a lot? You will marry only one, won't you?

---

get disappointed — огорчаться, разочаровываться; marry v — жениться

## (7) HOME EXERCISES

I. Дайте эквиваленты следующих русских словосочетаний:

конструктивный план; административное здание; эффективный метод; примитивная работа; прогрессивный мир; массивный стол; активные члены

II. Скажите, что перечисленные действия произойдут в будущем:

Model: Is your sister at home? (*this afternoon*). — No, but she **will be at home this afternoon**.

1. Is Father very busy now? (*in half an hour*). 2. Has your friend come yet? (*soon*) 3. Did you see Nelly yesterday? (*in a week*) 4. Do you know the number of his train? (*in some minutes*) 5. Have you bought a suitcase (чемодан) for this trip yet? (*the day after tomorrow*) 6. Did they take the exam on Saturday? (*next Monday*) 7. Have you shown your guest round the city? (*tomorrow*) 8. Have all the course members come to Moscow? (*next week*)

III. Поставьте вопросы к придаточным предложениям, используя следующие вопросительные слова: *why, when, on what condition*.

1. He will leave the office when he finishes the work.  
 2. They will carry out that research provided they get this new device.  
 3. She will not go to college as she doesn't feel well.  
 4. I'll leave college before he comes there.  
 5. She needs help because she lives quite alone.  
 6. They will take a plane if they go to Leningrad.  
 7. He came late yesterday because he had a lot of work to do at his office.  
 8. We'll send them a telegram as soon as he arrives.  
 9. She will visit her parents this week if she is not too busy.

IV. Закончите следующие предложения:

1. I don't know if . . . . 2. We are not sure whether . . . .  
 3. You may watch TV until . . . . 4. I'll give him the book as soon as . . . .  
 5. We'll go to the country unless . . . . 6. I'll wait for Nick till . . . .  
 7. He's got plenty of things to do before . . . . 8. They'll ring him up if . . . .  
 9. We'll be able to finish it in advance provided . . . .

## TEST TWO

Завершив работу над материалом уроков 8—11, выполните следующие упражнения. Проверьте правильность их выполнения по ключу.

I. Действия в нижеприведенных предложениях следует выразить либо с помощью глаголов в Present Perfect, либо в Past Indefinite. Назовите номера предложений, действие которых вы бы выразили в форме Present Perfect:

1. Были ли вы когда-нибудь в Ленинграде? 2. Видели ли вы сокровища Русского музея? 3. В Ленинграде я был несколько лет назад. 4. Но я никогда не бывал в Русском музее. 5. Когда я приезжал в Ленинград, у меня не было времени сходить туда.

II. Укажите номера предложений, в которых действие придаточных предложений следует выразить глаголом в Future Indefinite:

1. Я не знаю, придет ли он. 2. Если он придет, я ему скажу о вас. 3. Я не знаю, когда он придет. 4. Он придет, как только закончит работу.

III. Назовите номера слов, которые являются прилагательными:

1) statement; 2) biologic; 3) simplify; 4) preferable; 5) rational; 6) corrosion; 7) summarize; 8) user; 9) limitation; 10) closely

IV. Употребите предлагаемые глаголы в Past Indefinite или Present Perfect в зависимости от сигналов времени:

1. This group . . . a significant research recently. (*do*)  
2. They . . . already . . . essential results. (*achieve*) 3. . . . the new engineer . . . the group two months ago? (*join*) 4. We . . . not . . . to find that book yesterday. (*try*) 5. . . . you . . . a letter from your brother yet? (*receive*). 6. Who . . . at 6 o'clock? (*wake up*) 7. My family . . . in Moscow since 1960. (*live*) 8. . . . they . . . enough equipment last month? (*get*).

## Unit Twelve

### (I) GRAMMAR. СПОСОБЫ ВЫРАЖЕНИЯ МОДАЛЬНОСТИ В БУДУЩЕМ ВРЕМЕНИ (MODALITY IN FUTURE)

1. В ы н у ж д е н н о с т ь действия в будущем можно выразить глаголами **must** или **have (to)**. Глагол **have (to)** может употребляться в форме настоящего или будущего времени. Например:

(1)	(2)		(3)	(4)
I	<i>must</i>	<i>do</i>	some shopping	<i>tomorrow.</i>
	have got have shall have	} to do		

2. Возможность (способность, умение) выполнить действие в будущем можно выразить глаголом **can** или выражением **to be able (to)**. Например:

(1)	(2)		(3)	(4)
He	<i>can</i>	<i>do</i>	it	<i>tomorrow.</i>
	<i>will be able</i>	<i>to do</i>		

Задание. Прочитайте диалоги. Обратите внимание на ситуативное употребление модальных глаголов и их заместителей в простом будущем времени:

- Will you be able to come tomorrow?
- I think, I'll be able to come. However, I'll have to make some telephone calls in the morning.

\* \* \*

- Will you be able to help me?
- Yes, I'll be glad to.

## (2) WORD AND PHRASE STUDY

Английские прилагательные **able** *способный, умелый* и существительное **ability** *способность, умение, ловкость* используются в качестве суффиксов для образования прилагательных и существительных от глаголов с соответствующим значением способности к совершению какого-либо действия. Например: **to vary** — *изменяться*; **variable** ['veəriəbl] — *изменчивый, способный к изменению*; **variability** — *изменчивость, непостоянство*.

**Задание 1.** Определите исходные глаголы, от которых образованы следующие прилагательные и существительные. Переведите данные слова на русский язык. Проверьте правильность выполнения задания по ключу:

(1) measurable, measurability; (2) 'preferable, preferability; (3) readable, readability; (4) comparable, comparability; (5) irrecognizable

**Задание 2.** Переведите на английский язык прилагательные и назовите по-английски глаголы, от которых они образованы:

(1) питьевая вода; (2) съедобный фрукт; (3) изменчивая погода; (4) достижимые результаты; (5) объяснимые факты; (6) сравнимые результаты

**Задание 3.** Прочитайте интернациональные слова и постарайтесь понять их значение:

distance, port, total, separate, final, finance [faɪ'næns], financial [faɪ'nænsjəl], fashionable

### (3) READING 12A

**Задание 1.** Внимательно прочитайте текст и найдите в нем факты, свидетельствующие о том, что Лондон — многоликий город.

#### Great Britain

The British Isles [aɪləz] lie to the west of the continent of Europe. Their total area is 120,000 m<sup>2</sup> (square miles). They consist of two large islands and a number of small ones. The two large islands are Great Britain itself (England, Scotland and Wales) and Ireland ['aɪələnd]. Great Britain and the northern part of Ireland form the United Kingdom of Great Britain. England, Wales, Scotland and Ireland were once separate Kingdoms. The United Kingdom appeared only in the 17th century after centuries of wars and struggle as a result of which North Ireland became the first colony of Great Britain. The history of North Ireland has been and still is the history of a hard struggle of the Irish people for national freedom.

The population of Great Britain is about 56 million people. More than 80 per cent of the population live in towns and cities. The greatest concentration of the population is in the London area.

London is the capital of Great Britain. It is a great area covering several hundred square miles, the oldest part of which is with a history of almost two thousand years.

Modern London stretches for nearly 30 miles from north to south and the same distance from west to east. This is the area known as "Greater London" with a population of more than seven million. But we can hardly think of London as one great city nor even as a city and its suburbs, it is rather a number of cities, towns and villages that have during the past centuries grown together to make one very great town area. That's why London has many faces.

First there is the City of London, the financial and business centre of Great Britain. It's only about one square mile in area and not more than five thousand people live there, but on a working day its population increases to half a million. The City is concerned with finance [faɪ'næns], but it is also a market for goods of almost every kind from all parts of the world. Those who come to learn about London's history will find much to interest them in the City.

There is the West End—a fashionable popular shopping and entertaining centre to the west of the City. Here you will find the finest theatres, cinemas and concert halls, the large museums and the most luxurious [lʌg'zjuəriəs] hotels, the largest department stores and famous shops. The name "West End" is associated with riches, luxury [ˈlʌksəri] (роскошь) and goods of high quality.

Working class London is centred in the East End. It is a great area running eastwards from the City. The Port of London is here in the East End. Today you will find here miles and miles of docks and the great industrial areas that depend upon shipping. The East End of London is unattractive in appearance with miles of narrow streets, grey and black with smoke but very important to the country's commerce.

**Задание 2. Употребите подходящие по смыслу слова из предлагаемых в скобках вариантов:**

1. A mile is a measure of (*area/distance*). 2. Area is measured in (*square/scale*) miles, kilometres or metres. 3. Great Britain itself consists of (*one/two*) large and a number of small islands. 4. Great Britain (*includes/doesn't include*) North Ireland. 5. In the 19th century the United Kingdom of Great Britain consisted of (*England itself, Scotland and Wales/Great Britain itself and a number of colonies*). 6. "The City of London" is (*the whole/only the central part*) of London. 7. On a week day the population of the City (*decreases / increases*) to half a million. 8. The City of London is (*compared/concerned*) with finance. 9. The City is also a (*market/measure/money*) for

goods. 10. The shopping and entertaining centre of London (*lines/lights/lies*) to the west of the City. 11. The best shops, hotels, museums, cinemas and theatres are situated in the (*City/East End/West End*). 12. The name "West End" is associated with goods of high (*quantity/quality*). 13. The West End attracts people with plenty of (*market/money*) to spend. 14. The West End is (*attractive/unattractive*) in appearance.

Задание 3. Найдите в тексте эквиваленты следующих фраз и словосочетаний:

едва ли можно думать о . . . ; финансовый и деловой центр; скорее это ряд городов и деревень, сросшихся вместе; район Сити непосредственно связан с финансовыми операциями; товары хорошего качества; имеет непривлекательный вид; ассоциируется с богатством

#### (4) READING 12B

Задание 1. Внимательно прочитайте текст и скажите, какие проблемы волнуют студентов колледжей в Англии.

Слова для понимания текста: *to reduce/to diminish* уменьшать(ся); *to decrease/to cut* — сокращать(ся); *expenditure* — расходы, затраты; *to decimate* — казнить, истреблять; *opportunity* [ˌɒpəˈtjuːnɪti] — возможность.

### Colleges Work In Against Tory Cuts

CUTS in government expenditure on education are not a **new phenomenon**. They have been taking place for the past eight years, under both Labour and Conservative governments.

\*So it was not a great surprise to anyone that the present government's cuts in **public expenditure** hit education. But if the **current policies** are continued, education will not only have been hit, it will have been decimated.

\*Universities are facing a 15 per cent cut in finances. Plans **are in the pipeline** for the reorganisation of public sector higher education, and the Secretary of State for Education hopes to set up a national body to control and fund both polytechnics and other colleges.

These policies will severely reduce the educational opportunities available to people of all ages. But it will particularly affect young people in the 16-19 age group who are finding that while their **chances of getting a job** are diminishing rapidly, their opportunities in education are decreasing almost as fast.

Fighting back against education cuts has already begun.

The Vice-President in charge of education for NUS (National Union of Students) said that students wanted to study, but the government was preventing them from doing so.

The National Union of Students is attempting to show that students, staff and college administration can work together to oppose what the government is doing **to further and higher education**. This type of action must be continued over the coming years because the public must come to see education as a **major priority**.

After *Morning Star*, May, 1981.

Задание 2. Объясните, как вы понимаете слова, выделенные в тексте.

Задание 3. Переведите на русский язык абзацы, помеченные звездочкой.

### (5) CONVERSATION PRACTICE

I. Побеседуйте по содержанию текста 12A. Придерживайтесь следующего плана (работа в парах):

1. The size of the British Isles.
2. The number of large islands.
3. The geographical position of the British Isles on the map of the world.
4. The parts of Great Britain itself.
5. The composition of the United Kingdom of Great Britain.
6. The per cent of the population living in cities and towns.
7. The main parts of London.

II. Охарактеризуйте основные части Лондона (the City, the West End, the East End).

III. Скажите вашему собеседнику, что ему придется выполнить следующие действия. В ответ он должен сказать, что надеется, что сможет это сделать.

Model. *to come early tomorrow* → St. A.: You will have to come early tomorrow.

St. B.: I hope, I'll be able to come early.

to wake up early; to dress quickly; to meet the English delegation; to take the group to the hotel; to reserve rooms in advance; to welcome the delegates in English; to reserve seats at the restaurant; to provide everything for the meeting

IV. Диалог для работы в парах.



А.: Здравствуй, Миша!  
Это Петр. Слышно что-  
нибудь от Бориса?

So far as I know he is  
ill and won't be able to  
come tomorrow.

Ему долго придется ле-  
жать в постели?

I think he will.

Очень жаль. Надо будет  
навестить его на днях.

O.K. I'll ring you next  
week.

В.: Hallo, Mikel! Pete  
speaking. Any news of  
Boris?

Насколько мне известно,  
он болен и не сможет  
прийти завтра.

Will he have to stay in  
bed long?

Думаю, что да.

What a pity! We'll have  
to go and see him one of  
these days.

Хорошо. Я позвоню тебе  
на следующей неделе.

#### (6) ENJOY YOURSELF

A man from the country was visiting his son at college.  
He dropped into the chemistry class and spent some time  
watching the experiments.

"They are trying to discover a universal solvent," explained  
the professor to the father.

"What's that?"

"A liquid that will dissolve anything."

"That sounds okay with me, mister," said the man, "but  
when they find it, in what are they going to keep it?"

---

solvent *n* — растворитель; liquid *n* — жидкость; dissolve *v* — рас-  
творять

#### (7) HOME EXERCISES

I. Прочитайте и переведите на русский язык прилагательные, яв-  
ляющиеся производными от известных вам глаголов:

solvable, usable, changeable, comfortable, mistakable,  
questionable

II. Образуйте прилагательные и существительные от следующих  
глаголов и переведите их на русский язык:

port (держать), observe (наблюдать), apply (применять),  
practice (осуществлять), suit (соответствовать), move (дви-  
гаться).

III. Употребите глаголы в скобках в соответствующем времени  
(Present Indefinite или Future Indefinite):

1. We can't say if these students (*come*) here the day after tomorrow. 2. If you (*solve*) not the problems tonight you (*must solve*) them tomorrow morning. 3. What is the subject of Nick's paper? He (*must read*) it at the next seminar. 4. Ann is not at home now. We (*ring*) her in an hour. 5. If the boys (*return*) not from their trip today they (*come*) not to college tomorrow. 6. Pete does not know when his sister (*ring*) next time. 7. When the engineer (*complete*) the work he (*can leave*) for a holiday. 8. You haven't read the book yet. You . . . (*can read*) it till next Wednesday?

#### IV. Переведите на английский язык:

1. Поселок Солнечный (The settlement Solnechny) появился на карте совсем недавно. За последние несколько лет его население увеличилось в несколько раз (*several times*). Его появление связано со строительством Байкало-Амурской магистрали. 2. Я не смогу прийти к вам завтра. Я должен буду готовиться к семинару по физике. Я должен буду выступить по вопросу, связанному с будущим атомной энергетики (*atomic energetics*). 3. Вы сможете позвонить мне? — Да, я позвоню вам, если приду домой рано.

#### V. Ответьте на следующие вопросы:

1. How many exams will you have to take during your next examination period? 2. Will you have to take a lot of tests (*зачеты*) in different subjects? 3. How many tests will you have to take? 4. Will you be able to take any of the exams before the examination period starts? 5. Which of the exams will be the most difficult for you?

## Unit Thirteen

### (1) GRAMMAR. ФОРМЫ ПРОДОЛЖЕННОГО ВРЕМЕНИ (CONTINUOUS TENSES)

1. Времена группы Continuous (Present, Past, Future) обозначают действия в процессе их развития, непрерывности. Такие действия происходят в настоящем (Present), происходили в прошлом (Past) или будут происходить в будущем (Future) в какой-то определенный момент или отрезок времени. Этот момент может

а) подразумеваться из контекста: What are you speaking about?

б) иметь точное указание на момент совершения действия: **What were you doing yesterday at 8 p.m.?**

в) подчеркиваться другим однократным действием: **What were you doing when I called you on the telephone?**

г) выражаться наречиями, указывающими на длительность действия: **for hours (months, years); the whole day (month, year); all day (long); all the time, etc.**

Времена группы Continuous образуются с помощью вспомогательного глагола **to be** в форме соответствующего времени и причастия настоящего времени смыслового глагола (**be + V-ing**).

Continuous Tenses	be	V-ing
Present	am (is, are)	reading
Past	was, were	
Future	will (shall) be	

Примечание. 1. Глаголы, выражающие чувства и восприятия, такие как **see, hear, know, think, feel, understand** и др., как правило, не употребляются во временах группы Continuous.

2. Глагол **to be** никогда не употребляется во временах группы Continuous: **I was at home the whole evening yesterday.**

Задание. Прочитайте следующий диалог. Обратите внимание на ситуативное употребление времен группы Continuous:

- **What will you be doing, Tom, tonight at 10 o'clock? Will you be working?**
- **I don't think so. I hope I shall not be working, I'll be sleeping at this hour.**
- **Where were you yesterday afternoon?**
- **I was at home all afternoon. I was writing some letters to friends of mine.**
- **What were you doing when I called you on the telephone?**
- **When you called me I was having dinner.**

## (2) WORD AND PHRASE STUDY

1. Суффикс **-ment** образует от основы глагола существительные, выражающие отвлеченные понятия. Например: **to develop — development развитие; to enjoy — enjoyment развлечение.**

**Задание 1.** Образуйте существительные от следующих известных вам глаголов и переведите их на русский язык:

achieve, improve, excite, establish, govern

**Задание 2.** Найдите основу исходного глагола в следующих существительных и постарайтесь догадаться о значении этих глаголов:

equipment, arrangement, enlargement, movement, measurement

**Задание 3.** Прочитайте следующие слова и постарайтесь понять их значение:

Premier ['premjə], Parliament, Ministry, Chancellor ['tʃɑ:nsələ], procedure [prə'si:dʒə], monarchy; deputy; Conservatives, Liberals, Opposition, Prime Minister, principal offices, limit, statute ['stætju:t]

2. В английском языке имеется три эквивалента русского слова *министерство* — **Ministry, board, office** и четвертый эквивалент — **department** (американский вариант).

**Задание 4.** Прочитайте и попытайтесь перевести на русский язык названия следующих министерств в английском и американском вариантах. Для перевода названий пользуйтесь следующими словами: trade — торговля; health — здоровье; affair — дело; internal — внутренний. Проверьте правильность выполнения задания по ключу:

(1) War Ministry; (2) Home Office (The Ministry of Internal Affairs); (3) Foreign Office (The Ministry of Foreign Affairs); (4) State Department (*Am*); (5) The Board of Foreign Trade (The Ministry of Trade); (6) The Ministry of Public Health; (7) The Ministry of Sea Transport

3. В английском языке есть два эквивалента русского слова *министр* — **Minister, Secretary, Secretary of State** (*English*). *Заместитель министра* — **A Deputy Minister or Under-Secretary.**

**Задание 5.** Догадитесь, какие функции в правительстве выполняют следующие министры. Проверьте правильность выполнения задания по ключу:

(1) Foreign Secretary; (2) Home Under-Secretary; (3) Secretary of State; (4) Minister for Finance (Chancellor of the Exchequer [iks'tʃekəl]); (5) War Minister (Secretary of State for War).

### (3) READING 13A

**Задание 1.** Прочитайте текст. Обратите внимание на особенности политической системы Великобритании.

## The British Political System

Great Britain is a parliamentary monarchy, and the Queen (or the King) is the formal Head of the Government. However her power is not absolute but constitutional, limited by the Government.

Strange though it may seem there is no single document defining the British constitution. It's rather a structure based on a number of statutes, laws, traditions, and customs assembled over a long period of time.

The British Parliament consists of the House of Commons and the House of Lords.

The House of Commons consists of 635 members elected by popular vote. The election is held every five years and at this election every person above the age of twenty has a vote.

The House of Commons elects its own president who is called the Speaker. In the absence of the Speaker his place is taken by his deputy, the Chairman of Committees, who is also elected by the House of Commons.

The House of Lords consists of the whole body of English peers, a number of elected Irish and Scottish peers and a certain number of the Bishops (епископ) of the church (церковь) of England. But practically only two political parties are represented in Parliament—the Conservatives and the Labour Party.

The party which has the largest number of members returned to Parliament takes office and is called the Government; the party (or parties) in the minority is called the Opposition. The Government sits on the right of the Speaker's chair, the Opposition on the left.

**Forming of the Government.** When it is known which Parliamentary party has a majority in a newly elected House of Commons, the Queen calls the leader of that party to become Prime Minister (or Premier). The Premier forms a new Government. He chooses from the Lords and Commons the men numbering about sixty to fill the principal offices and they form Ministry. From these are chosen fifteen to twenty to form the Cabinet of Ministers. \*The act of 1937 limited the number of the Cabinet members to 17 of whom not more than 14 may be members of the House of Commons and not less than 3 members of the House of Lords.

These 17 are the holders of the most important offices, e.g. (for example) the Chancellor of the Exchequer (министр финансов), the Home Secretary, the Secretary for Foreign

Affairs, the Minister for Defence, the Minister of Health, the President of the Board of Trade, etc.

**Задание 2. Употребите подходящие по смыслу слова из предлагаемых в скобках вариантов:**

1. There is no single document (*deciding/devoting/defining/decreasing*) the British Constitution. 2. The members of the House of Commons are elected by popular (*view/voice/vote*). 3. The Speaker of the House of Commons is chosen by the (*Queen/House of Commons/Premier*). 4. The deputy takes the place of the (*Premier/Speaker*) in case of his absence. 5. Lord Chancellor is the Speaker of the (*House of Commons/House of Lords*). 6. The Party which returned to Parliament in majority is called the (*Government/Opposition*). 7. The Party in the minority sits on the (*right/left*) of the Speaker's chair. 8. The Opposition returns to Parliament in the (*majority/minority*). 9. The Premier of Great Britain is appointed by the (*House of Lords/House of Commons/Queen*). 10. A new Government is formed by the (*Queen/Premier/Lord Chancellor/Speaker of the House of Commons*). 11. The leader of the Government Party becomes the (*Speaker/Lord Chancellor/Premier*).

**Задание 3. Найдите в тексте эквиваленты следующих фраз и словосочетаний:**

в отсутствие; назначает лидера; главные ведомства, министерства; выборы проходят каждые пять лет; документ, определяющий . . . ; структура, основанная на . . . ; приходит к власти; как это ни странно

#### (4) READING 13B

**Задание 1. Прочитайте текст за 3 минуты. Ответьте на вопросы:**

1. What is a Bill? 2. Who can introduce Bills? 3. Can the House of Lords oppose Bills?

Слова для понимания текста: to introduce — вносить на рассмотрение; to originate — возникать; circumstance — обстоятельство; to reject — отклонять; to delay — задерживать

#### The Procedure [prə'si:dʒə] of Passing a Law

\*A law passing through Parliament is called a Bill. It becomes law, an Act of Parliament, when it is passed. \*A Bill may be introduced by any member, but in practice Bills are generally introduced by a Minister. They are called public

Bills when presented by the Government and private Bills when presented by a private member.

Bills are nearly always introduced in the House of Commons. Normally a Bill is passed by both the House of Commons and the House of Lords. \*A Bill which originates in the House of Lords cannot become law unless it is passed by the House of Commons while a Bill passed in the Commons can become law under certain circumstances even if rejected by the Lords. The Lords cannot oppose a Money Bill and they can only delay for one year any other Bill which they do not like.

Задание 2. Найдите глагольные формы в предложениях, помеченных звездочкой. Переведите эти предложения на русский язык.

### (5) CONVERSATION PRACTICE

I. Побеседуйте по содержанию текстов 13A/B. Придерживайтесь следующего плана (работа в парах):

1. The electoral system of Great Britain. 2. The structure of the House of Commons. 3. The main political parties in Britain. 4. The Government Party and the Opposition. 5. Forming a Government in Great Britain. 6. The Cabinet of Ministers. 7. The procedure of passing a law. 8. The procedure of introducing a Bill. 9. The difference between a law and a Bill.

II. Ведущий студент записывает на листке бумаги место, в котором он находился в определенный момент дня/вечера и отдает записку преподавателю. Студенты пытаются отгадать задуманное место, задавая вопросы типа: Were you outside/inside? Were you sitting/walking/standing/reading/buying smth/etc. at that moment yesterday? Отгадавший студент становится ведущим.

III. Диалог для работы в парах.

A.: Привет Петя! Давно тебя не видел. Что ты делал летом?

I was working in a construction team of our college. We were taking part in the construction of an industrial project.

Это был твой первый трудовой семестр?

Yes, it was. Next summer I'll be working there

B.: Hallo, Petel Haven't seen you for ages. What were you doing last summer?

Я работал в строительном отряде нашего института. Мы принимали участие в строительстве промышленного объекта.

Was it your first work semester?

Да. Следующим летом я буду работать там опять.

again. I am sorry, I must  
be off. See you one of  
these days.

До свидания!

Извини, я должен идти.  
Увидимся на днях.

Bye-bye!

## (6) ENJOY YOURSELF

Isaac Newton was a member of the British Parliament, but he never opened his mouth (pot) there except once, when he asked somebody in the gallery to open the window.

## (7) HOME EXERCISES

I. Образуйте существительные при помощи суффикса *-ment* от нижеприведенных глаголов и переведите их на русский язык:

to astonish (удивлять), to enrich (обогащать), to fulfil (выполнять), to agree (соглашаться), to appoint (назначать)

II. Употребите глаголы в скобках в соответствующем времени группы Continuous:

1. We . . . for our trip when a friend of mine came. (*pack*)  
What . . . you . . . ? (*do*) Won't you have time enough to do it tomorrow? . . . you . . . still . . . if I come in an hour? (*work*)  
No, we shan't. We . . . TV (*watch*) Tom and Betty are going to join us.

2. The train . . . when we got to the station. (*leave*) "We are late again," Pete said. "And the next train . . . at 2." (*come*) So we . . . on the platform for an hour and a half. (*wait*)  
3. I . . . dinner while my sister . . . the flat when we heard a telephone call. (*cook, clean*)

III. Переведите на английский язык:

1. Я все еще собирал (to pack) чемодан, когда зазвонил телефон. «Ты все еще дома? — Я слышал голос моего друга, — Я стою у остановки трамвая и жду тебя уже полчаса». 2. Вчера было холодно и весь вечер шел дождь. Мы с другом сидели дома и играли в шахматы, а все остальные смотрели какой-то фильм по телевидению. 3. Если я приду завтра в 6, сможешь ли ты пойти со мной в кино? — Боюсь, что в это время я все еще буду работать.

IV. Ответьте на следующие вопросы:

1. When will your summer vacation start? 2. What are your plans for the vac? 3. Will you spend the vac with your family? 4. Are you going to join any construction team? 5. When will you be able to leave for your vac?



## Unit Fourteen

### (1) GRAMMAR. ФОРМЫ ПЕРФЕКТНОГО ВРЕМЕНИ (PERFECT TENSES)

1. Времена группы Perfect выражают действие, завершившееся к определенному моменту в настоящем, прошедшем или будущем времени и образуются с помощью вспомогательного глагола **have** в соответствующем времени (Present, Past, Future) и причастия прошедшего времени (Participle II) смыслового глагола (**have + V<sub>3</sub>**).

Perfect Tenses	have	Participle II (V <sub>3</sub> )
Present *	have (has)	completed done
Past	had	
Future	shall (will) have	

Момент в прошлом или будущем может фиксироваться:

- 1) другим прошедшим или будущим действием, которое произошло или произойдет позже по времени. Например: *We had studied these materials before we began to use them in construction. I shall have finished this work when you come. What shall we do if I have not found a job by then?*
- 2) обозначениями времени с предлогом **by**:

by	that time — к тому времени
	3 o'clock — к 3 часам

Например: *By that time* the first snow **had** quite gone.  
*By the end of May*, perhaps, I **shall have found** another job.

**Задание.** Прочтите отрывки речи и обратите внимание на ситуативное употребление времен группы Perfect:

---

\* Употребление Present Perfect Tense см. с. 27.

1. — You saw him yesterday, didn't you?

— Yes, I did. Had you ever seen him before?

— No, I hadn't. Until I saw him yesterday, I had never seen him before.

2. — I saw my friend in the street last week. Just think! Until I saw him last week, I hadn't seen him for ten years! He said he had come to Moscow a year before. Until he came to Moscow he had worked somewhere in the Far East.

3. — I will have done all the housework by the time you return. I'll have cleaned the house and cooked the dinner.

## (2) WORD AND PHRASE STUDY

1. Английские суффиксы **-ful**, **-less** служат для образования прилагательных от существительных и означают наличие (**ful**) или отсутствие (**less**) свойства, обозначаемого существительным. Например: beauty—beautiful (прекрасный); heart—heartless (бессердечный).

Задание. Найдите в правой колонке русский эквивалент для английских словосочетаний. Правильность выбора проверьте по ключу:

(1) rightless people	a. бесцельная поездка
(2) a wonderful event	b. безработный
(3) a lawful wish	c. бесшумная работа
(4) a jobless man	d. бесправный народ
(5) noiseless work	e. могущественная страна
(6) successful cooperation	f. замечательное событие
(7) a peaceful demonstration	g. успешное сотрудничество
(8) a purposeless trip	h. безнадёжный случай
(9) a hopeless case	i. законное желание
(10) a powerful country	j. мирная демонстрация

2. Обратите внимание на чтение следующих прилагательных:

**executive** [ig'zekjutiv] — исполнительный

**legislative** ['ledʒislətiv] — законодательный

**judicial** [dʒu'diʃəl] — правовой, судебный

## (3) READING 14A

Задание 1. Внимательно прочитайте текст. Напишите кратко о государственном устройстве США.

## The United States of America

The USA is located in the central part of North America. Its area is 9,363,200 square kilometres. The population of the USA is over 228 million. The history of the United States goes back as far as the beginning of the 17th century when the major European powers—Spain, England, France, Portugal and Holland began to expand their territories.

The first English settlement (поселение) was established in 1607 and by the end of the 17th century all British colonies with the exception of Georgia had been organized. The local people of the American continent experienced all the methods of aggression, colonialism, racism and exploitation. The struggle of the local population for their freedom was in progress for many years but it was unequal.

At the beginning of the 18th century the British succeeded in consolidating and the group of young colonies grew under the English rule until the Revolutionary war of 1775-1783 made them independent. Since then the young capitalist state began to develop at a high rate. The United States is a Federal Union of 50 states now. Its basic law is the Constitution adopted in 1789 which defines the structure and the method of national government and lists its rights and fields of authority (власть).

Under the Constitution the federal government of the United States is divided into three main branches: the executive, the legislative and the judicial.

The executive branch, which includes the President, Vice-President, and the President's cabinet is responsible for administrating and executing the laws. The President and Vice-President are elected for four years of service and may be re-elected for another term of four years.

The legislative branch of the government is the Congress. It is composed of the Senate and the House of Representatives.

The Senate consists of 100 members, two from each of the 50 states, elected by people of the states for a term of 6 years. The House of Representatives consists of 435 members, the number is determined by the population of each state. The members of the House of Representatives are elected for two years.

The function of the Congress is to make laws and to finance the operation of the government.

From the very beginning there appeared in the USA a system of two major political parties and this two-party system

practically dominates the political life of the country. The two major parties are the Democratic Party and the Republican Party. The chief functions of a party are to organize elections and when in the minority to keep a check on the party in office but both of them are the parties of monopoly capitalists, and the American people do not see any difference between them. This is the reason why so many abstain from voting.

The Cabinet is rather a tradition going back to the first President. Its purpose is to advise the President on any affair he wishes such advice. The Cabinet is composed of the heads of the thirteen executive departments—the Secretary of State, the Secretary of Treasury (финансов), the Secretary of Defence and all the rest.

**Задание 2.** Употребите подходящие по смыслу слова из предлагаемых в скобках вариантов:

1. The Constitution of the USA was (*achieved/adopted/devoted*) in 1789. 2. The Constitution (*divides/decides/defines*) the structure of the government. 3. The Federal Government of the USA is (*defined/decided/divided*) into three branches. 4. The purpose of the Cabinet is to (*attend/adopt/advise*) the President. 5. The President is the (*head/heart*) of the Government of the USA. 6. Young colonies in America grew under the British (*rule/rate/right*) until the Revolutionary war of 1775-1783. 7. After the Revolutionary war the young imperialist state—the USA began to develop at a high (*rule/rate/right*). 8. The first English settlement was (*excited/stretched/established*) at the very beginning of the 17th century. 9. The number of members to the House of Representatives is (*determined/divided*) by the population of each state.

**Задание 3.** Выпишите из текста английские эквиваленты следующих словосочетаний:

за исключением . . . ; на срок . . . ; с самого начала . . . ; осуществляет контроль за правящей партией; кабинет состоит из . . . ; . . . отвечает за исполнение законов; . . . содержит перечень прав; воздерживаться от голосования

#### (4) READING 14B

**Задание.** Прочитайте внимательно песню и скажите, какому событию она была посвящена и о чем в ней поется.

## Song for a March

*A new song from the folk group, the Houghton Weavers (мкату) called "We Want Work" was written especially for the People's March for Jobs to London which took place in May 1981. The words are as follows:*

I'm a hard working bloke with  
a family,  
I've got pride in my country  
and my skills.  
We've survived in our humble  
little cottage,  
But my pride in my trade won't  
pay the bills.

Now I'm vexed,  
Because they've made me redundant

For I will not see my trade  
slowly die;

With my banner in my hand,  
I'll join the marching band,

By Georgel

You'll hear our battle cry

*Chorus*

We want work, we don't want  
dole.

We're sick of the old king cole.

By Georgel

There'll be a sight to see  
I'll hold my head up high,  
They'll know the reason why.

By Georgel

You will be proud of me.

Now you know I'm not usually  
aggressive,

I can count any man as my  
friend,

But this time I'll be marching  
down to London

For being idle

bloke — парень

skill — мастерство

survive — выжить

trade — ремесло

vex — гневаться

redundant — излиш-  
ний

marching band —  
группа демонстрантов  
by George — честное  
слово

battle cry — шум  
битвы

dole — пособие по  
безработице

cole — капуста

sight — зрелище

idle — не занятый,  
безработный

Would drive me round the bend.  
So I'm off the big demonstration  
For I will not see my trade  
slowly die,  
With my banner in my hand,  
I'll join the marching band.  
By George!  
You'll hear our battle cry.

Would drive me round  
the bend.— Сведет  
меня с ума.

From *Morning Star*, May 15, 1981.

## (5) CONVERSATION PRACTICE

I. Побеседуйте по содержанию текста 14А. Придерживайтесь следующего плана (работа в парах):

1. The geographical position of the USA. 2. The population of the USA. 3. The number of the states united in the Federal Union. 4. The history of the USA. 5. The Constitution of the USA. 6. The President and the Vice-President of the USA. 7. The field of their action and their responsibility. 8. The field of the action of the Congress and its responsibility. 9. The main political parties of the country and their functions.

II. Первый студент сообщает, что вчера у него был очень напряженный день и перечисляет дела, которые он успел сделать к 8 часам вечера. Второй студент повторяет его последнюю фразу и сообщает, что он сделал вчера помимо перечисленного предыдущим студентом и т. д. Участвует вся группа. Победителем считается студент, составивший последнюю фразу.

Model: *Student A.*: By eight o'clock yesterday I had done a lot. I had been to college . . . *Student B.*: I had been to college and I had seen my friends, etc.

III. Диалог для работы в парах.

*A.*: What is your future speciality concerned with?

С лазерами. А какой областью науки интересуетесь вы?

I'm interested in chemistry. I've graduated from the Moscow Institute of Chemical Technology.

*B.*: С какой областью деятельности связана ваша будущая специальность?

It is concerned with lasers. And what field of science are you interested in?

Я интересуюсь химией. Я окончил Московский химико-технологический институт.

Когда вы окончили институт?

I graduated in 1980.

When did you graduate?

In 1980.

#### (6) ENJOY YOURSELF

A famous Hungarian physicist had just finished reading his scientific paper (научный доклад). It was the first time he had ever made a report in English. After he had finished an American physicist came up to him.

"Say, in what language did you read your paper?"

"Didn't you understand that?"

"Well, yes, of course. But why did you put in so many English words?"

#### (7) HOME EXERCISES

I. Переведите на английский язык следующие прилагательные:

замечательный, мирный, успешный, бесшумный, безнадёжный, могущественный, законный, обнадёживающий

II. Употребите глаголы в скобках в одной из форм группы Perfect:

1. The girl went for her vac after she . . . her exams. (*pass*) 2. He understood the book only after he . . . it again. (*read*) 3. Your parents . . . for Kiev by the time your letter arrives. (*leave*) 4. . . . you . . . this text yet?—No, I . . . . I . . . it by the end of the lesson. (*translate*) 5. Peter left for home as soon as he . . . his work here. (*finish*) 6. We . . . some new equipment by 15th December. (*get*)

III. Переведите на английский язык:

1. Когда мы пришли, они уже пообедали и ждали нас.  
2. Я закончил свой доклад в конце прошлой недели. Мой друг закончит свой доклад только к концу этого месяца.  
3. Он сказал мне, что он уже написал письмо. 4. Они не сделали работу к 6 часам вечера вчера. Они сделают ее к 6 часам вечера сегодня. 5. Когда мы приехали на станцию, поезд уже ушел.

IV. Ответьте на следующие вопросы:

1. What is your future speciality concerned with?  
2. What field of science are you interested in? 3. In what field of science or engineering are you planning to work in future?

## Unit Fifteen

### (1) GRAMMAR. ПОСЛЕДОВАТЕЛЬНОСТЬ ВРЕМЕН В АНГЛИЙСКОМ ЯЗЫКЕ (THE SEQUENCE OF TENSES)

Если действие главного предложения выражено глаголом в одном из прошедших времен, то глагол придаточного дополнительного предложения тоже должен стоять в одном из прошедших времен (Past Indefinite, Past Continuous, Past Perfect, Future in the Past). При этом наблюдается следующая закономерность:

1. Одновременность действия дополнительного придаточного предложения с действием главного предложения выражается временем Past Indefinite или Past Continuous. Так, русское предложение — Я думал, что он *видит* меня — в английском языке передается следующим образом: I **thought** he **saw** me. Или: Как ты *узнал*, что я (нахожусь) здесь? — How **did** you **know** I **was** here?

2. Предшествование действия дополнительного придаточного предложения действию главного предложения выражается временем Past Perfect. Например: I **thought** he **had sent** the letter but he **hadn't**.

3. Будущность действия придаточного дополнительного предложения по отношению к действию главного предложения выражается простым будущим временем в прошедшем (Future in the Past), которое образуется с помощью вспомогательных глаголов **should** [ʃud] и **would** [wud] и инфинитива смыслового глагола без частицы **to**. Например: He **said** he **would go** there the next Sunday.

4. Правило согласования времен не применяется, если в придаточном дополнительном предложении высказывается общеизвестная истина. Например: Ancient Greeks **thought** that the Universe is made up of atoms.

### (2) WORD AND PHRASE STUDY

1. Суффикс **-dom** образует отвлеченные существительные от прилагательных и существительных. Например: **king** король — **kingdom** королевство; **free** свободный — **freedom** свобода.

2. Английскому суффиксу глаголов **-ate** соответствуют русские суффиксы **-ировать**, **-бать**. Например: **pulsate** — пульсировать.



**Задание 1.** Прочитайте английские глаголы и постарайтесь понять их значение:

agitate, concentrate, delegate, regulate, associate, demonstrate, ventilate, vibrate, dictate, cooperate

**Задание 2.** Скажите, от каких слов образованы следующие производные слова. Переведите эти слова на русский язык. Проверьте правильность перевода по ключу:

(1) painful; (2) movement; (3) smoothly; (4) steadily; (5) perfectly; (6) gracefully; (7) destructive; (8) accomplishment; (9) unbelievably; (10) growth; (11) vastness

### (3) READING 15A

**Задание 1.** Внимательно прочитайте текст и найдите в нем ответы на следующие вопросы:

1. Where was the report delivered? 2. What was Gus Hall speaking of? 3. What impressed him most of all?

From the report delivered by Gus Hall, general secretary of the Communist Party, USA, at a forum sponsored by *Political Affairs* magazine.

### Two Systems

In themselves, congresses of the Communist Party of the Soviet Union (CPSU) are significant world events.

But aside from the United Nation's General Assembly, they are the largest, most impressive gatherings of world leaders, prime ministers, presidents, members of parliaments and trade union and political leaders. The Congress always provides a rare opportunity to meet, discuss and chat with the leaders of the majority of nations and movements.

### Exciting and Heroic

In real life there is nothing more sure, more real, more positive, exciting and majestic as the steady growth and construction of a socialist transformation of life, on the path toward communism.

When we speak of the building of socialism, of course we must keep in mind that it takes place in the context of the real world, that is **being built** by real people with human weaknesses by their labor, sacrifices and accomplishments with all the contradictions and problems of the real world. Therefore, the achievements are the fruits of real struggle, of great labor and effort. They are victories against all the forces of

anti-socialism. The tasks and the challenges are vast and unbelievably complex.

Sitting in the Great Hall of the Congress, listening to the reports and discussions of the 26th Congress, one is **struck** by the enormity of the Congress reflecting the enormity of the country and its resources, the size and influence of the Party, the 300 million people, over 100 different nationalities, all moving together in the same direction.

One can see a huge mountain, but a mountain moving smoothly and steadily, even gracefully, on a path toward the future.

It is perfectly reasonable that the tasks and problems match the enormity, the complexity and vastness of the country itself.

Just think, within a short span of 60 years since its birth and only about 35 years after the most devastating, destructive war, the Soviet Union **has emerged as** the most advanced, modern industrial power in the world. It now leads the world in overall quality of life. It **has found solutions** to social and economic problems human societies have wrestled with for 5000 years.

However, as Comrade Leonid Brezhnev pointed out, "a new life is not born easily. The road of social progress is hard and sometimes painful. This makes the achievements of socialist society all the more significant and vivid, and the deeds of its builders and defenders all the more impressive."

**Задание 2. Прочитайте текст повторно. Найдите английские эквиваленты следующих русских словосочетаний:**

значительные события в мире; кроме . . . ; редкая возможность встретиться и побеседовать с политическими лидерами; нет ничего более волнующего и величественного; преобразование жизни; мы должны помнить, что это происходит . . . ; с человеческими слабостями; плоды реальной борьбы; задачи и требования, выдвигаемые временем; колоссальные размеры страны; за короткий период в 60 лет; опустошительная, разрушительная война; возник как самая передовая . . . ; в настоящее время он является первым в мире по всем жизненным критериям; проблемы, которые человеческое общество пыталось разрешить . . .

**Задание 3. Объясните употребление временных форм в сказуемых, выделенных в тексте.**

**Задание 4. Подготовьтесь к собеседованию по содержанию текста 15А.**

#### (4) READING 15B

Задание 1. Прочитайте текст быстро и внимательно. Ответьте на вопрос, о каких двух противоположных мирах говорится в отрывке из речи Гэса Холла.

### Contrasting Worlds

— In our times there are two opposite, contrasting worlds—two opposing social, political, economic and ideological systems that are confronting and competing (соевну-ются) with each other **in every area of life for the minds and hearts** of the world's peoples.

These two competing world systems are centered and focused on the leading forces of both worlds—the US and the USSR.

The conflict, the struggle for social and human progress, is sharply reflected in the relationships between these two countries because they are **the centers of the world conflict** between the two world systems — socialism and capitalism.

\*History has set them on the world stage as two showcases (витрина), the **testing ground** of the two systems. The world cannot help but keep making comparisons. \*Never has the contrast been more striking, more vivid or the competition been sharper than it is today.

**Almost simultaneously** there were two congresses in session. In Moscow the 26th Congress was addressed by President Brezhnev and in Washington President Reagan reported to the US Congress on the State of the Union.

Just from these reports alone the basic, fundamental and underlying principles and **concepts of society** are clearly outlined.

\* President Brezhnev proclaimed the essence and aims (цель) of the 11th Five-Year Plan to be “construction and peace”, the “happiness and well-being of all the Soviet people”, “**stable economic growth, steadily rising living and cultural standards, social justice, lofty (возвышенный) humanism and genuine democracy**” and a socialist way of life whose motto is: “All in the name of man, all for the benefit of man.”

\* On the other side of the ocean, in the capital of world capitalism, the President told American people that their “economy is in crisis, that cuts in services, programs and living standards is on the order of the day.”

From the report by Gus Hall, *Daily World*, May 14, 1981.

Задание 2. Объясните, как вы понимаете слова, выделенные в тексте.

Задание 3. Переведите на русский язык абзацы, помеченные звездочкой.

### (5) CONVERSATION PRACTICE

I. Ответьте на вопросы по содержанию текста 15A (работа в парах):

1. What forum did Gus Hall deliver his report at? 2. What significant world event was he speaking about? 3. Where and when was the 26th Congress held? 4. What struck Gus Hall most at the Congress? 5. What achievements of the USSR does he speak of? 6. What does he compare our country with?

II. Ваш собеседник недавно приехал в Москву. Задайте ему как можно больше вопросов о нем самом, о его семье и его пребывании в Москве.

*Ask him:* 1) what his name is; 2) how old he is; 3) where he came from; 4) what his home country is; 5) what his job is; 6) if he has got a large family; 7) if his family has come to Moscow with him; 8) if he stays at a hotel; 9) if the hotel is in the centre of the city; 10) if the hotel is comfortable; 11) how long he will stay in Moscow; 12) where he will go after he leaves Moscow; 13) if he will get home by plane or by train; 14) if he has enjoyed his stay in Moscow; 15) if he will come to Moscow again

III. Сообщите вашему собеседнику некоторую информацию о себе и попросите его дать вам аналогичную информацию о нем.

*Model. St. A.: My name is Oleg Romanov. What is your name? → St. B.: My name is (Robert Black).*

name; age; job, the place you live in; the college you are at; the subjects you take; the hobby you have

IV. Диалог для работы в парах.

*A.: Morning, Mike! Pete speaking. Did Alex say where he was staying?*

*Да. Он сказал, что остановился в гостинице «Минск».*

*Did he tell you when he had come to Moscow?*

*B.: Здравствуй, Миша. Говорит Петр. Александр сказал, где он остановился?*

*Yes, he did. He said he was staying at the hotel "Minsk".*

*Сказал он тебе, когда приехал в Москву?*

Нет. Он сказал только, что пробудет в Москве до пятницы.

Can you tell him to call me back?

Конечно.

No, he didn't. He only said he would be in Moscow till Friday.

Ты можешь попросить его позвонить мне?

Certainly.

## (6) ENJOY YOURSELF

### First Thing

At communications school a trainee was shown a switchboard and asked: "What would you do first thing if you were assigned as operator of this equipment?"

"I would order a new switchboard, sir."

## (7) HOME EXERCISES

I. Образуйте наречия от следующих прилагательных и переведите их на русский язык:

vast, steady, perfect, painful, smooth, graceful, significant, positive, majestic, human, weak, reasonable, vivid, impressive

II. Переведите предложения из прямой речи в косвенную, начиная каждое предложение словами *I didn't know...*:

Model. Where is he? → *I didn't know where he was.*

1. Where is the library? 2. Which direction is it? 3. How long will it take to get there? 4. When is he coming? 5. Why is she doing that? 6. Where is the railway station? 7. How far is it? 8. Where have they been? 9. When are they coming? 10. Why did they leave the place? 11. When will they return? 12. How long will they stay?

III. Переведите на английский язык:

1. Я спросил юношу, когда он поступил в институт. 2. Он сказал, что поступил в институт год назад (a year before). 3. Он сказал, что (он) успешно (successfully) сдал вступительные экзамены. 4. Я спросил его, на каком он курсе. 5. Он ответил, что на первом (курсе). 6. Я спросил его, какой областью физики он интересуется. 7. Он ответил, что его будущая работа будет связана с молекулярной физикой. 8. Он сказал, что он надеется стать (что будет) хорошим специалистом в этой области.

#### IV. Ответьте на следующие вопросы:

1. Have you got a family?
2. Are you a large family?
3. Do you live with your parents or apart?
4. How old are you?
5. What does your father do?
6. Is your mother a housewife?
7. What is your mother's job?
8. Has your family got a self-contained flat?
9. What town does your family live in?

### Unit Sixteen

#### (1) GRAMMAR. ТИПЫ СПЕЦИАЛЬНЫХ ВОПРОСОВ (TYPES OF SPECIAL QUESTIONS)

1. Вопрос к подлежащему и дополнению вводится вопросительными местоимениями **who**, **what**.

Местоимение **who** имеет форму объектного падежа — **whom**, но в разговорном языке наблюдается тенденция заменять форму объектного падежа формой именительного падежа. Сравним: For **whom** did you vote? — **Who** did you vote for? **Who(m)** do you mean?

Задание 1. Спросите сначала о субъекте, а затем об объекте действия:

1. This factory produces shoes. 2. They are writing a dictation. 3. They have voted for this candidate. 4. This fact will facilitate our studies. 5. He looked at us in surprise.

2. Вопрос к определению существительного вводится следующими вопросительными местоимениями и вопросительными словами:

**what/what kind (sort) of** — какой (качество предмета или лица);

**whose** — чей (принадлежность предмета или лица);

**which** — который по счету (место предмета или лица среди им подобных).

Задание 2. Спросите о качестве или принадлежности предметов (или лиц) в следующих предложениях:

1. My parents live in Moscow. 2. I like **their** flat. 3. You may take the **black** pencil. 4. I want to meet **your** friends. 5. There was a **heavy** rain yesterday.

3. Вопрос к обстоятельствам вводится вопросительными словами **when**, **where**, **how**, **why**, **what for**, **on what condition**.

Задание 3. Задайте вопросы к выделенным членам предложения?

1. He left for England a month ago. 2. He didn't leave the office until 8 o'clock because he had plenty of work to do. 3. I'm going there by plane because it's faster. 4. I'll come unless I'm too busy. 5. If it doesn't rain tomorrow we'll have a picnic.

## [(2) WORD AND PHRASE STUDY

1. Суффикс **-ness** образует существительные со значением качества признака от прилагательных и причастий прошедшего времени. Например: **kind — kindness доброта; helpless—helplessness беспомощность; prepared—preparedness подготовленность.**

Задание 1. Переведите следующие существительные с суффиксом **-ness** на русский язык. Проверьте правильность перевода по ключу:

(1) **productiveness**; (2) **quickness**; (3) **exactness**; (4) **seriousness**; (5) **successfulness**; (6) **vastness**

Задание 2. Используя английские прилагательные в правой колонке, дайте английские эквиваленты русских существительных в левой колонке:

(1) эффективность, (2) толщина, (3) влажность, (4) свежесть, (5) темнота, (6) счастье, (7) глубина, (8) быстрота, (9) богатство, (10) прохлада, (11) громкость, (12) шероховатость

wet, rough, fresh, thick, dark, effective, happy, vast, deep, quick, rich, cool

Задание 3. Прочитайте и постарайтесь понять следующие слова:

specific, scene, cranes, dynamic, inflation, rent, per cent, apartment (= flat)

## (3) READING 16A

Задание 1. Внимательно прочитайте выдержки из речи Гэса Холла. Выпишите выражения для характеристики жилищной проблемы, затронутой в речи.

## Housing Problem

Let us look at some specific areas of life in the US and the USSR and see how they both stack up:

In housing, there are no slums (трущобы) in the Soviet Union and now over 80 per cent of Soviet families have their own apartments or homes. By the end of 1986 every family will have their own apartment. In the last five years over 50 million people received new housing.

This under conditions where in 60 years the Soviet Union had to build their basic housing stock and rebuild the housing destroyed in World War II. If the US had to replace the housing that was destroyed in the Soviet Union during World War II it would have taken 40 years of construction at the very highest level of industrial capacity. Everywhere one looks in the Soviet Union the skyline is alive with building cranes and scaffolds. It is one of the most dynamic scenes in the world.

The Soviet people pay 2-3 per cent of their income for housing, while in the US because of inflation and landlord ripoffs (грабеж) it is now estimated that millions pay 50 per cent and more of their wages for rent. It is estimated that 95 per cent of the American people cannot afford to buy a house.

In the Soviet Union utilities are included in the rent. While in the US utility rates and profits continue to soar [сo:] (возрастать) to the point where for the first time this past winter people actually had to close up their homes because they could not afford to pay the heating bills. We all know the stories about the Siberian weather. Well, no one freezes to death in Siberia. I wish you could see the magnificent, comfortable, modern cities built on permafrost with central heating systems, while in cities like New York last year people were found in their heatless apartments frozen to death.

From the report by Gus Hall,  
*Daily World*, May 14, 1981.

**Задание 2. Прочитайте текст повторно и найдите в нем английские эквиваленты следующих русских словосочетаний:**

... и как они соотносятся; в условиях; новое жилье; основной жилищный фонд; США потребовалось бы ...; на горизонте вырисовываются строительные краны и леса; не могут позволить себе ...; коммунальные услуги вклю-



чаются в квартирную плату; счета за отопление; вечная мерзлота; системы центрального отопления

**Задание 3.** Подготовьтесь к обсуждению проблем, связанных с жилищным строительством в СССР и США.

#### (4) READING 16B

**Задание 1.** Прочитайте текст за 2 минуты и объясните его основную идею.

Слова для понимания текста: **to demand** [di'mænd] — требовать; **to roam** — бродить; **plight** [plait] — положение; **mentally disturbed** — с психическими расстройствами; **to shrink** — сужаться

Up to 50,000 single people are homeless in Britain today, and more and more of them are forced to sleep in the streets, the Commons was told.

Action by the government and local councils was demanded to help the growing number of homeless people who roam the nation's big cities.

The plight of the homeless is getting worse every year.

While more and more are becoming homeless, fewer and fewer beds are available in local authority hostels or cheap, lodging houses. Many hostels and lodging houses were being pulled down to make way for more expensive hotels or office blocks.

Replying for the Government the Social Services Under-Secretary agreed that homelessness among single people was a growing problem, and that accommodation was shrinking.

*After Morning Star, March 1978.*

**Задание 2.** Прочитайте текст повторно и найдите в нем ответы на следующие вопросы:

1. What newspaper wrote about the conditions of homeless people in Great Britain? 2. Why do the conditions of homeless people become worse and worse every day? 3. Why are many cheap hostels and lodging houses pulled down?

#### (5) CONVERSATION PRACTICE

**I. Ответьте на вопросы (работа в парах):**

1. How old are you? What town were you born in? 2. Where did you go to school? 3. What do you do? 4. What college are you at? 5. When did you get into college? 6. What year are you in? 7. What is your future speciality concerned

with? 8. Are you interested in this field of science (engineering)? 9. Which of the subjects you take at college do you like most of all? 10. Are you good at English? 11. Have you achieved good results in your language studies?

II. Вы оказались на улице незнакомого города. Попросите указать вам путь до какого-нибудь места (см. список слов в левой колонке). Студенты вашей группы выполняют роль встречающих прохожих, используя при ответах слова из правой колонки.

Model: St. A.: Excuse me, could you tell me the way to the museum? → St. B.: It's over there. Go straight ahead for about two blocks.

nearest post-office; bus-stop; trolley stop; metro station; hospital; shop; department store; taxi stand; cinema; Hotel "Rossiya"; Intourist Office; Restaurant "Moskva"; Lenin Stadium

across the street; in the middle of the block; a three minute walk from here; about three blocks from here; go straight; go to your left (right); take a number ... bus then change to bus number ...; go by the Metro to ... station

### III. Диалог для работы в парах.

A.: Извините, не скажите ли вы, как добраться до Третьяковской галереи?

Certainly. But it's too far to walk. You'd better take a number 6 bus. Then you will go all way without changing.

A где остановка автобуса?

It's over there, on the right. Just round the corner.

Большое спасибо.

It's nothing.

B.: Excuse me, could you tell me how to get to the Tretyakov Gallery?

Конечно. Но она расположена слишком далеко, чтобы добираться пешком. Вам лучше сесть на автобус номер 6. Тогда вам не надо будет делать пересадок.

And where's the bus-stop?

Вон там справа. Как раз за углом.

Thank you very much.

He стоит.

## (6) ENJOY YOURSELF

### Something He Can Do Fast

Fourteen-year-old George who helped in the grocer's (бакалейная лавка) wasn't a fast worker. In fact, he moved very slowly indeed. One day Mr. Jones, the grocer, called out to him:

"George, is there anything you can do fast?"

"Yes, Mr. Jones," answered George, "I get tired fast."

## (7) HOME EXERCISES

**I. Образуйте существительные с суффиксом *-ness* от следующих прилагательных и переведите их на русский язык:**

helpless, happy, lawless, meaningless, useful, thoughtful, watchful, wasteful, great, thin, rich, strange, slow

**II. Напишите вопросы к выделенным членам предложения:**

In 1917 the October Socialist Revolution in Russia rocked the entire capitalist world. It led to the establishment of two diametrically opposite social systems in the world. By giving birth to the world's first socialist state the revolution opened up a new era in the history of mankind. It accelerated the march of world history in the direction of social progress. The experience of the first socialist state inspired the peoples of the colonies and dependent countries in their fight for emancipation. The October Revolution proclaimed new relations between nations.

**III. Переведите на английский язык:**

Территория СССР простирается более чем на 10 тыс. км с запада на восток. Население СССР составляет более 268 млн. человек. СССР — Союз 15 Советских Социалистических Республик, объединенных в одно государство. Конституция СССР была принята в 1977 году. Согласно Конституции Верховный Совет СССР (The Supreme Soviet of the USSR) избирается сроком на 5 лет. Все слои населения принимают участие в выборах и могут быть избраны депутатами в Верховный Совет. СССР является многонациональным (multinational) государством. Основной чертой отношений между различными национальностями является дружба.

## TEST THREE

Завершив работу над материалом уроков 13—16, выполните следующие упражнения. Проверьте правильность их выполнения по ключу.

I. Выберите правильную форму глагола из предлагаемых в скобках вариантов:

1. By this time tomorrow we shall (*complete/be completing/have completed*) all the experimental part. 2. Theoretical researches (*were done/had been done/were being done*) before we began the experiments. 3. At this time tomorrow he will (*be making/make/have made*) his last experiment. 4. Yesterday I heard that he (*has/had*) never made such experiments. 5. We have never expected that the work (*would/will*) be so interesting.

II. Назовите номера предложений, в которых вы употребили бы глагол *do* (*does, did*) при постановке вопроса к выделенным словам:

1. The delegates were met **at the station**. 2. They met five delegates **yesterday**. 3. They took the delegates straight **to the hotel**. 4. We have already seen **them**. 5. The delegates always attend **museums**. 6. They will go to the museum **tomorrow morning**. 7. **He** knows some people from this group. 8. He saw them **last year**.

III. Напишите индекс модальных глаголов и их эквивалентов, которые вы употребили бы при переводе следующих предложений на английский язык:

1. Я должен идти. 2. Я не могу остаться. 3. Я должен был уйти еще 2 часа тому назад. 4. Вы должны будете начать работу сами. 5. Я смогу прийти завтра и помочь вам. 6. Вы должны были показать мне работу раньше. 7. Мы могли поработать вместе.

*a*—can  
*b*—will have (to)  
*c*—had (to)  
*d*—must  
*e*—shall be able (to)  
*f*—could

## II. SPECIAL COURSE

### *Unit Seventeen*

#### (1) GRAMMAR. ОСОБЕННОСТИ УПОТРЕБЛЕНИЯ СТРАДАТЕЛЬНОГО ЗАЛОГА В АНГЛИЙСКОМ ЯЗЫКЕ ПО СРАВНЕНИЮ С РУССКИМ ЯЗЫКОМ

1. В английских предложениях типа **I was given the book** действие глагола **to give** в страдательном залоге направлено одновременно на подлежащее **I** и на прямое дополнение **the book**. В русском языке аналогичная мысль выражается через неопределенно-личное предложение типа **Мне дали книгу**.

2. Сказуемое в страдательном залоге выражено глаголом с примыкающим к нему предлогом типа **to look at**, **to send for** и т. д. В этом случае в русском языке используется также форма неопределенно-личного предложения. Например:

The doctor was sent **for**.  
The picture was long  
looked **at** and often  
asked **about**.

За доктором послали.  
На картину подолгу смо-  
трели и часто о ней спра-  
шивали.

Задание 1. Переведите следующие предложения на русский язык:

1. We were asked about it again and again. 2. The film was spoken about. 3. Nobody was answered. 4. I was shown my room and offered a cup of tea. 5. He rose to speak and was listened to with great attention. 6. Why don't you answer when you are spoken to? 7. After a long discussion an agreement was arrived at. 8. I knew I was being waited for. 9. Nothing was heard from him. 10. He has just been sent for and is expected to come in some minutes. 11. These figures are strongly doubted and they are often compared with the recently received ones. 12. His speech and the demonstration of the experiment were followed with great attention. 13. My letter was answered immediately and I was asked in it to join the group. 14. Another interesting effect was observed during the experiment.

**Задание 2. Переведите следующие предложения на английский язык:**

1. Их часто просят прийти.
2. На его письма отвечают.
3. Об этом факте часто думают и говорят.
4. За его работой внимательно следили.
5. К группе присоединились два дня спустя.
6. Эти результаты будут улучшены.
7. Нас ожидают.
8. Их только что пригласили туда.

## (2) WORD AND PHRASE STUDY

1. Префиксы *in-* (*il-*, *im-*, *ir-*) указывают на отрицание, противоположность, отсутствие чего-либо (*не-*, *без-*). Например: *available* *доступный* — *inavailable* *недоступный*.

**Задание 1. Переведите следующие прилагательные и существительные на русский язык:**

*inaccurate*, *incomplete*, *incompleteness*, *inconvenient*, *inaccuracy*, *indivisible*, *indivisibility*, *inexperience*, *inexperient*

**Задание 2. Пользуясь списком приведенных ниже английских прилагательных и существительных (б), переведите на английский язык следующие словосочетания (а):**

(а) неспособность получить; неточное определение; невоспроизводимый сплав; недостаточное количество; недостижимая плотность; несравнимые результаты

(б) *ability*; *comparable*; *sufficient*; *reproducible*; *achievable*; *exact*

2. Запомните следующие способы чтения:

*математических выражений и символов:*

$\times$  — *times/multiplied by*

$:$  — *divided by*

$=$  — *equals/is equal to/is/makes*

Например:  $3 \times 3 = 9$  *Three times three equals nine.*

$12 : 4 = 3$  *Twelve divided by four makes three.*

*десятичных дробей:*

0.2—0 [ou] *point two/zero* ['ziərou] *point two/point two/ought* [nɔ:t] *point two*

0.002 — *point 00 two*

1.15 — *one point one five*

64.598 — *sixty-four point five nine eight*

*степени:*

$10^7$  — *ten to the seventh power*

$10^{-5}$  — *ten to the minus fifth power*

### (8) READING 17A

**Задание 1.** Внимательно прочитайте текст. Запомните описание разных систем измерения и отметьте их преимущества (или недостатки).

#### Units of Measurement

Unit is a quantity or dimension adopted as a standard measurement. Much of physics deals with measurements of physical quantities such as length, time, velocity, area, volume, mass, density, temperature and energy. Many of these quantities are interrelated. For example, velocity is length divided by time. Density is mass divided by volume. Volume is a length times a second length, times a third length. Most of the physical quantities are related to length, time and mass, therefore all the systems of physical units are derived from these three fundamental units.

Practically there are three main systems of measurement in use today: the British system of units, the Metric system of units and the quite recently adopted SI Units (System of International Units). With a few exceptions nearly all the nations of the world use the Metric system. The value of the MKS (meter-kilogram-second) system is that its various units possess simple and logical relationships among themselves, while the British system (the fps—foot-pound-second) is a very complicated one. For example, in the British system 1 mile is equal to 1,760 yards; 1 yard is equal to 3 feet, and 1 foot is equal to 12 inches. In the English system converting one unit into another is a hard and monotonous job, while in the MKS system conversions of one unit to another can be carried out by shifts of a decimal point (comma in Russian writing).

The standard meter of the world was originally defined in terms of the distance from the north pole to the equator. This distance is close to 10,000 kilometers or  $10^7$  (ten to the seventh power) meters. By international agreement the standard meter of the world is the distance between two scratches (штрих) made on a platinum-alloy bar. It is kept at the International Bureau [bjue'rou] of Weights and Measures in France.

The square meter ( $m^2$ ) is an MKS unit of area while the cubic meter is an MKS unit used to measure volume.

In fact, the SI Units is an internationally agreed coherent system of units derived from the MKS system. It is replacing all the other systems. The seven basic units in it are: the meter

(m), kilogram (kg), second (s), ampere (a), Kelvin (K), mole (mol), and candle (свеча) (cd).

Задание 2. Употребите подходящие по смыслу слова из предлагаемых в скобках вариантов:

1. Unit is a (quality/quantity) adopted as a standard of measurement. 2. Foot is a unit of (area/length) in the English system of measurement. 3. Inch is (more/less) than foot is. 4. There are 12 (yards/inches) in 1 foot. 5. The kilogram is a unit of mass in (the English system/the MKS system). 6. Velocity is length (multiplied/divided) by time. 7. The second is a unit for measuring time (in MKS system/all the systems). 8. (Dimension/division) is a mathematical operation. 9. The square meter is an MKS unit of (area/volume). 10. 11,500 cubic feet is the measure of (area/volume/mass).

#### (4) READING 17B

Задание 1. Прочитайте текст за 2 минуты и скажите, какие наблюдения легли в основу определения единицы времени.

Слова для понимания текста: **average** — средний; **rule out** — исключить; **beyond** — вне, за пределами

Time is a physical concept and its definition is related to certain laws of physics. \*The laws of physics say that the **average time** it takes for the sun to move from its noon position on one day to its noon position the next day must be constant and is called the **mean solar day**. We divide the mean solar day into 86,400 equal parts and get the unit **used to measure** time in all three systems, **namely** one second. The other units of time used are the minute (min) and the hour (hr).

Basing a concept such as time on the laws of physics we cannot be sure that these laws are absolutely correct. For example, suppose the speed of light is slowly increasing with time. \*This would then cause a change in some of our standards of length and time. \***So far** there is no experimental evidence that any of the universal physical constants are changing with time but this does not rule out the possibility of a very slow change **beyond the accuracy** of present measurements.

Задание 2. Объясните, как вы понимаете слова, выделенные в тексте.

Задание 3. Переведите на русский язык предложения, помеченные звездочкой.



## (5) CONVERSATION PRACTICE

### I. Answer questions on Text 17A:

1. What is a unit? 2. What are the three fundamental units? 3. What systems of measurement are widely in use all over the world nowadays? 4. Why is the Metric system widely in use all over the world? 6. What are the units of length in the MKS/British system? 7. How was the meter originally defined? 8. Where is it kept? 9. What standard unit is used for measuring area/volume/mass/time?

### II. Say in English:

#### a) In the British system:

1 mi = 1,760 y; 1 y = 3 f

1 f = 12 i

#### b) In the metric system:

1 km = 1000 m; 1 m = 100 cm

1 cm = 10 mm

#### c) Do you know that . . . 1 i = 25.3995 mm?

1 f = 30.479 cm?

1 y = 0.9144 m? 1 mi = 1.6093 km?

### III. Solve the following problems:

$$36 : 3 = \quad 27 : 3 = \quad 75 : 5 =$$

$$5 \times 5 = \quad 2 \times 22 = \quad 14 \times 5 =$$

## (6) ENJOY YOURSELF

### Champion Swimmer

"Can you swim, Porter?" one sailor asked the other.

"Ask me? Better than you, Mike. But it's nothing. Once I saw a man swimming up the Niagara Falls. Do you hear that? Up".

"Yes, that man was me, Porter."

## (7) HOME EXERCISES

I. Прочитайте и переведите на русский язык следующие цепочки слов, не прибегая к помощи словаря:

Model 1: effective density → эффективная плотность

↑                      ↓  
какая? ← что?

active volume; atomic dimension; available volume; critical velocity; fundamental quantity; molecular dimension; standard length; working volume; effective density; decimal point

Model 2: light velocity → скорость света  
                  ↑                  ↓  
                  чего? ← что?

earth surface; phase shift; density coefficient; energy density; wind velocity; proton mass; atom structure; vector quantity; energy unit

## II. Переведите на русский язык:

1. These terms were agreed upon. 2. This quantity is derived from the above equation. 3. Sunlight is converted into electrical power by special solar panels. 4. This dimension was agreed upon. 5. Such phase shifts were dealt with. 6. The purpose of this research is well founded. 7. Are you being waited for at present? 8. This unit is obtained from the above expression. 9. The unit obtained was multiplied by the instability coefficient.

## III. Переведите на английский язык:

1. Эксперимент был завершен в срок благодаря (thanks to) хорошей организации. 2. Проблемой преобразования солнечного света в электричество уже занимались. 3. До сих пор используются три основные системы измерений. 4. Результаты будут проверены и на них будут ссылаться в статье (paper). 5. Величина частицы была определена с большой точностью. 6. Значение массы умножили на коэффициент плотности. 7. Многие из этих величин взаимосвязаны.

# Unit Eighteen

## (1) GRAMMAR. ИНФИНИТИВ (THE INFINITIVE)

Инфинитив — это неличная форма глагола, которая дает отвлеченное, обобщенное понятие о действии, не выражая лица, числа и наклонения. Инфинитив обладает свойствами глагола и существительного.

Свойства глагола	Свойства существительного
1) имеет видо-временные формы 2) имеет формы залога 3) может иметь дополнения 4) определяется наречиями 5) характеризуется частицей <i>to</i> ( $V_0$ )	в предложении выполняет те же синтаксические функции, что и существительное

В современном английском языке имеется развитая система форм инфинитива.

Действительный залог		Страдательный залог
Indefinite	<i>to ask</i> ( $V_0$ )	<i>to be asked</i> ( <i>to be</i> + $V_3$ )
Continuous	<i>to be asking</i> ( <i>to be</i> + $V$ -ing)	
Perfect	<i>to have asked</i> ( <i>to have</i> + $V_3$ )	<i>to have been asked</i> ( <i>to have been</i> + $V_3$ )

Неопределенная и длительная формы инфинитива указывают на одновременность действия инфинитива с действием глагола-сказуемого, причем длительная форма указывает на действие в процессе его развертывания одновременно с действием сказуемого. Например:

I am glad <b>to hear</b> it.	Я рад <i>услышать</i> это (сейчас).
I was glad <b>to hear</b> it.	Я был рад <i>услышать</i> это.
I shall be glad <b>to be speaking</b> to you again next week.	Я буду рад <i>поговорить</i> с вами на будущей неделе снова.

Перфектная форма инфинитива указывает на то, что действие, выраженное инфинитивом, предшествовало действию сказуемого. Например: I am sorry **to have left** you alone. Извините, что я *оставил* вас в одиночестве.

Наличие в форме инфинитива сочетания вспомогательного глагола **to be** с третьей формой смыслового глагола

указывает на страдательный залог: **to be done, to have been brought**. Сравните: I don't want to leave the place. Я не хочу *уходить* отсюда. I don't want **to be left** here. Я не хочу, чтобы меня *оставили* здесь.

**Синтаксические функции инфинитива в предложении  
и способы их перевода на русский язык**

To be educated you are to ask. I have come here to ask and to be educated.	Обстоятельство (0) (4) <i>Для того чтобы ...</i>
To ask is not easy.	Подлежащее (1) <i>Спрашивать ...</i>
To live is to create. We are to create.	Часть сказуемого (2) <i>... творить</i>
Science teaches you to create.	Дополнение (3) <i>... творить</i>
The job to be done isn't easy.	Определение (4) <i>..., которую нужно сделать</i>

Как определение инфинитив примыкает к определяемому существительному справа и выражает действие еще не реализованное, возможное или необходимое, которое подлежит осуществлению в будущем. Например: 1. We have a number of problems **to solve**. Имеется целый ряд проблем, *которые необходимо решить*. 2. The power station **to be build** here will supply this region with electric energy. Электростанция, *которая будет здесь построена*, будет снабжать этот район электроэнергией.

**Задание 1.** Укажите номера предложений, перевод которых вы назвали бы с союза «для того чтобы...» ( $V_0$  в функции 0):

1. **To build** a new railway line of this length is a very complicated task. 2. **To build** the line in such a short period of time a lot of preliminary (предварительный) work must be done. 3. **To complete** it on time it is important to work out all the details. 4. **To deal with** such accurate measurements is extremely difficult. 5. **To obtain** the data (данные) on

such shifts is the purpose of the paper. 6. To derive the data we must make several experiments.

Задание 2. Переведите следующие предложения на русский язык, обращая внимание на инфинитив в функции определения:

1. There is nothing to worry about. 2. Packing is the first thing to be done. 3. Here are some instructions to be followed. 4. You always find something to be done. 5. Have you got any book to read? 6. This is the book to pay attention to.

## (2) WORD AND PHRASE STUDY

1. От основы некоторых английских глаголов при помощи суффиксов **-ment**, **-ance/-ence**, **-ion**, **-tion**, **-sion** образуются существительные, обозначающие отвлеченные (абстрактные) понятия. Например:

**V + -ment = N**

to develop + -ment = development — *развитие*

**V + -ance/-ence = N**

to depend + -ence = dependence — *зависимость*

**V + -ion/-sion/tion = N**

to describe + -tion = description — *описание*

Задание 1. Образуйте существительные от следующих, известных вам, глаголов при помощи суффикса **-ment** и переведите их на русский язык:

move, appoint, improve, achieve, agree, involve, enjoy, excite

Задание 2. Прочитайте и переведите на русский язык нижеприведенные существительные. Назовите глаголы, от которых они образованы:

conductance, appearance, resistance, reference, difference

Задание 3. Образуйте существительные от следующих глаголов при помощи суффиксов **-ion/-tion/-sion** и переведите их на русский язык:

complete, define, interrelate, possess, suppose, consider

2. **phenomenon** — *явление* — слово греческого происхождения.

Обратите внимание на форму множественного числа **phenomena** — *явления*.

3. with reference to — в отношении, ссылаясь на . . .  
without reference to — без ссылки на . . .

4. i.e. (Lat.) = that is — т. е.

5. etc. (Lat.) = and so on — и т. д.

### (3) READING 18A

Задание 1. Внимательно прочитайте текст и найдите в нем факты, относящиеся к предмету изучения двух разделов механики — кинематики и динамики.

## Kinematics

Kinematics is the branch of mechanics which is concerned with the phenomena of motion without reference to mass or force of an object or a moving particle. It deals with motion only from the standpoint of measurement and precise description, while dynamics is concerned with the causes or laws of motion.

A complete description of a moving particle would involve its mass, direction, speed, distance travelled, time, force producing change of speed, etc. However, kinematics describes motion with respect to speed, time, and distance only, while the nature of the particle or object whose motion is under study is not specified. And so, in kinematics we concern ourselves primarily with three physical quantities: 1) the distance between two positions; 2) speed, i.e. how fast a continuous change of position takes place; 3) the time it takes to get from one position (point, location) to another. Kinematics is not concerned with either the mass of a moving particle or forces producing change of speed.

Here we are to define speed only as amount of change of position per unit time. Generally the word "per" indicates division. For example, "mass per unit volume" means mass divided by volume. The definition of speed gives us a method of measuring it. We divide the amount of change of position (i.e. the distance covered) by the time it takes for the change to happen. We can say that

$$\text{Units of speed} = \frac{\text{units of distance (length)}}{\text{units of time}}$$

For instance, meters are units of distance, seconds are units of time, then meters per second (m/sec) are units of speed. Let  $v$  = speed,  $d$  = distance and let  $t$  = time, then  $v = d/t$  is a mathematical definition of speed. In words, it

defines speed as amount of change of position per unit time, or distance travelled per unit time. By the way, the words "velocity" and "speed" are considered as synonyms unless they are used in technical literature. In the language of science there is a difference in their meaning. While the word "speed" means the rate at which distance is covered, the word "velocity" means speed in a definite direction. Of the two terms "velocity" is much more often used by physicists, for it is broader and more convenient.

**Задание 2.** Употребите подходящие по смыслу слова из предлагаемых в скобках вариантов:

1. Kinematics (*is/isn't*) concerned with forces. 2. In kinematics we study: (*the mass of a particle/direction of motion/speed/distance travelled/forces producing change of speed/time*). 3. The word "per" (*indicates/doesn't indicate*) multiplication. 4. The branch of physics dealing with laws of motion is (*kinematics/dynamics*).

**Задание 3.** Заполните пропуски соответствующими словами:

1. We describe motion from one position to another in terms of the . . . covered and the . . . it takes to go from one position to another. 2. Mass per unit volume means mass . . . by volume. 3. Km/hr is a unit of . . . in the . . . system. 4. We define speed as . . . and express this definition mathematically as . . . . 5. Kinematics is the science of . . . and we define motion as . . . . 6. The word "per" indicates . . . .

**Задание 4.** Дайте русские эквиваленты следующих английских словосочетаний:

from the standpoint of; without reference to; with respect to; by the way; in a definite direction; for instance

#### (4) READING 18B

**Задание 1.** Прочитайте текст за 2 минуты. Найдите в тексте определение таких понятий, как смещение, направление, скорость.

### Scalar and Vector Quantities

Mass, length, time, area, velocity, acceleration—all of these are physical quantities. Whenever we measure one of these we are finding its magnitude. The magnitude of a physical quantity is always expressed as some number times some unit of measure. For instance, "the magnitudes" 7 cm, 6 cm<sup>2</sup>,

60 mph are all expressed as numbers "7, 6, 60" times units of measure of length, area and speed (cm, cm<sup>2</sup>, mph).

"30 miles" is a measurement of a distance. "30 miles west" is a measurement of displacement. Both have a magnitude of 30 miles. However, the displacement also includes the direction in which it is measured. "30 mph" is a measurement of speed. "20 mph south-west" is a measurement of velocity. Both speed and velocity have magnitude. Which of the two has direction? (speed or velocity?) "35 mph west" is a velocity. "30 miles west" is a displacement. Quantities which have magnitude only are scalar quantities, while vector quantities have magnitude and direction. Mass, volume, area, and intervals of time have magnitude only. They are scalar quantities. Force, velocity and acceleration have magnitude and direction. They are vector quantities.

**Задание 2.** Соотнесите каждый из терминов в списке А с соответствующей ему величиной в списке В.

А. velocity; a speed; a displacement; a magnitude; a direction.

В. (30 miles); (30 miles north); (30 mi/hr north); (30 mi/hr); (north).

**Задание 3.** Прочитайте по-английски следующие величины и определите, являются они векторными или скалярными величинами:

90 ft/sec north; 47 miles; 15 cm<sup>2</sup>; 15 mph 30°; 32 ft/sec<sup>2</sup> towards the centre of the earth.

**Задание 4.** Заполните пропуски соответствующими словами:

1. Quantities which are scalar have . . . only. 2. Mass, volume, area and intervals of time have magnitude only. They are . . . quantities. 3. Quantities which have both magnitude and direction are . . . quantities. 4. Force, velocity and acceleration have magnitude and . . . . They are . . . . . 5. "5 miles 30° east or west"; "10 mph north east"; "9.8 m/sec<sup>2</sup> towards the center of the earth" are all . . . quantities because they have both . . . and . . . . 6. There are two kinds of physical quantity. The measurement of a scalar quantity consists of . . . . The measurement of a vector quantity consists of . . . and . . . .

## (5) CONVERSATION PRACTICE

**I. Answer questions on Text 18A:**

1. What is the text concerned with? 2. What is kinematics? 3. What does kinematics deal with? 4. What is dynamics



concerned with? 5. With respect to what parameters does kinematics describe motion? 6. What is the mathematical formula for speed? 7. Are the words "speed" and "velocity" synonyms in technical literature? 8. Which of them is more often used in technical literature and why? 9. What does the word "speed" mean? 10. What does the word "velocity" mean?

**II. Using the scheme given below, speak on the branch of science dealing with motion.**

mechanics  $\longrightarrow$  object of study  $\begin{array}{c} \longrightarrow \text{dynamics} \\ \longrightarrow \text{kinematics} \end{array} \longleftarrow$  concepts concerned

### (6) ENJOY YOURSELF

"If the Dean [di:n] (декан) doesn't take back what he said to me this morning I am going to leave college".

"What did he say?"

"He told me to leave college".

### (7) HOME EXERCISES

**I. Выпишите из текста 18А английские эквиваленты следующих русских словосочетаний:**

пройденное расстояние; количество изменения положения; между прочим; раздел механики; без ссылки на . . .; полное описание; относительно скорости; главным образом; с точки зрения . . .; в определенном направлении, например, . . .

**II. Переведите на русский язык следующие предложения, обращая внимание на перевод инфинитива в различных функциях:**

1. Here are some tables (таблицы) to be referred to later. 2. There are a lot of problems to be solved in order to understand the phenomenon under study. 3. The Soviet scientists were the first to make the satellite. 4. To be precise is the character of an experimenter. 5. There are some other phenomena to be considered. 6. This paper will be read at the conference to open shortly in Dubna. 7. To consider all these effects took a lot of time. 8. The method to be followed will be discussed later. 9. To define the object of the experiment you must consult your professor. 10. The data to be obtained from the experiment are very important. 11. I am glad to have joined this research team. 12. We are lucky to be working at a very interesting problem.

**III. Переведите на английский язык;**

1. Трудно дать точное описание этого явления. 2. Ссылки, которые будут сделаны, очень важны. 3. Для того чтобы завершить эксперимент, они должны работать еще несколько дней. 4. Между прочим, они хотят описать этот эксперимент в статье. 5. Начинать эту работу без необходимых инструментов невозможно. 6. Для того чтобы понять эту физическую концепцию, необходимо знать некоторые законы физики.

## Unit Nineteen

### (1) GRAMMAR. МОДАЛЬНЫЕ ГЛАГОЛЫ (MODAL VERBS)

Понятие долга, обязанности, необходимости, вынужденности совершения действия в английском языке выражаются рядом следующих глаголов.

must	}	самое сильное значение	↓	должен (обязан)	
have (to)				вынужден	
should	}			необходимо	
ought [ɔ:t] (to)				следует	
need	}	самое слабое значение		надо	(совет)
be (to)				предстоит (по плану, договоренности и т. п.)	

1. Глаголы **must**, **may** в сочетании с длительной или перфектной формой инфинитива выражают предположение (почти полную уверенность) или вероятность и переводятся словами *должно быть*, *вероятно*, *очевидно* (перфектная форма указывает на вероятность совершения действия в прошлом). Например: He **must be working** now. Он, *должно быть, работает* сейчас. He **must have been right**. *Вероятно, он был прав*. He **may have got** this article. Он, *возможно, достал* эту статью.

2. Глаголы **can** и **could** в отрицательной форме в сочетании с перфектным инфинитивом выражают сомнение в возможности совершения действия в прошлом и обычно переводятся словами *не может быть (чтобы)*. Например: He **cannot (couldn't) have made** such a mistake. *Не может быть, чтобы он допустил такую ошибку*.

3. Глаголы **should**, **ought (to)**, **could** в сочетании с перфектной формой инфинитива выражают порицание или упрек по поводу невыполненного действия в прошлом и

переводятся словами *следовало бы, должен был бы, надо бы*. Например: You should have gone there yesterday. Вам *следовало бы пойти* туда вчера. This question **ought to have been discussed** with him. *Надо было бы обсудить* этот вопрос с ним.

Задание. Прочитайте предложения. Назовите номера предложений, в которых модальный глагол *must* выражает предположение или вероятность. Переведите эти предложения на русский язык:

1. This phenomenon must be described in detail. 2. The temperature must have been specified before. 3. I must have met that man somewhere. 4. This effect must have caused some change in the atomic structure. 5. Some new considerations must be involved into this study. 6. This evidence must provide some new facts. 7. This value must have been included into the above considerations. 8. They must have referred to the figures above. 9. These phenomena must be distinguished carefully.

## (2) WORD AND PHRASE STUDY

Суффикс **-al** является наиболее частотным для образования прилагательных:

$N + -al = A$
---------------

gravitation + **-al** = gravitational

Задание. Образуйте прилагательные от следующих существительных и переведите их на русский язык:

region, structure, universe, proportion, centre, centrifuge, direction, origin, experiment, physics, mathematics, optics

## (3) READING 19A

Задание 1. Внимательно прочитайте текст. Расскажите по-английски об основных положениях гравитационной теории Ньютона и о роли, которую она сыграла в развитии физики.

### Newton's Theory of Gravity

The first main step in the process of the development of general physical theory was brought about by Newton. Before Newton, people looked on the world as being essentially two-dimensional—the two dimensions in which one can walk about, while the up-and-down dimension seemed to be some-

thing essentially different. Newton showed how one can look on the up-and-down direction as being symmetrical with the other two directions, by bringing in gravitational forces and showing how they take their place in physical theory. One can say that Newton enabled us to pass from a picture with two-dimensional symmetry to a picture with three-dimensional symmetry.

Born to a farmer's family on January 1, 1642 Isaac Newton developed the theory of gravity by the time he was 24 years old. Twenty years later he returned to this subject and in 1687 his great work *Principia* was published. In it Newton explained the structure and mechanics of the Universe and laid down the law of Universal Gravitation. He proved mathematically that every particle in the Universe attracts every other particle with a force which is directly proportional to the product of the masses of the particles and inversely proportional to the square of the distance between them. Thus, the force of attraction between two masses  $m_1$  and  $m_2$  in kilograms separated by a distance of metres, is given by  $F = \frac{Gm_1m_2}{s^2}$  newtons where  $G$  is the gravitational constant.

The region in which one massive body (i.e. body which possesses the attribute of mass) exerts a force of attraction on another massive body is called gravitational field.

The gravitational force between the Earth (or other planet or satellite) and a body on its surface, or within its gravitational field is called gravity. As gravity is proportional to the mass of the planet, or satellite and inversely proportional to the square of the distance from its centre, the gravity on a planet or satellite in terms of the Earth's gravity is given by  $\frac{1}{m_p} \cdot \frac{d_p^2}{d_e^2}$ , where  $m_p$  is the mass of the planet in Earth masses, and  $d_p$  and  $d_e$  are the diameters of the planet and Earth respectively. It was found that the gravity on the surface of the Moon is 1/6 that on the surface of the Earth.

Gravity is responsible for the weight of a body; the weight of a body is just one kind of gravitational force of attraction which the Earth exerts on that body and is always directed towards the centre of the Earth. It is equal to the mass of the body multiplied by the acceleration due to gravity. Gravity causes bodies to fall to the Earth with a uniform acceleration, but the magnitude of the acceleration due to gravity varies with geographical location and altitude. Gravity is reduced to a very small extent by the centrifugal force caused by the

Earth's rotation (for an object at rest on its surface). In order to stay in orbit round the Earth (or other planet or satellite), an orbiting body has to achieve a velocity which will produce a centrifugal force which exactly balances the force of gravity. For instance, the Moon travels in a curved path around the Earth. This means that it is continually changing the direction of its velocity, i.e. the Moon is in a state of continual acceleration and the net force on it is not zero.

**Задание 2.** Употребите подходящие по смыслу слова из предлагаемых в скобках вариантов:

1. Velocity is a (*scalar/vector*) quantity. 2. The Moon (*is/isn't*) in a state of continual acceleration. 3. If the net force applied to the Moon were zero, it would travel in a (*straight/curved*) line path. 4. The Earth doesn't travel in a straight line path and the net force on it (*is/isn't*) greater than zero. 5. The force which produces the acceleration of an artificial earth satellite (*is/isn't*) a gravitational force. 6. The force which causes the book to fall (*is/isn't*) the same one which causes the Moon to move in a curved path. 7. Kilo-gram and gram are units used to measure gravitational (*mass/force*). 8. Newton and dyne are units used to measure gravitational (*mass/force*). 9. The weight and the gravitational mass of an object are (*the same/different*) physical quantities. They are measured in (*the same/different*) units. 10. The forces which hold the planets of the solar system in their elliptical orbits are (*gravitational/magnetic/electrical*) forces.

#### (4) READING 19B

**Задание.** Прочитайте текст за 2 минуты и ответьте на вопрос:

What will tomorrow bring to TV users?

Слова для понимания текста: *to modify* — видоизменять; преобразовывать; *purpose* — цель; *multipurpose* — универсальный, многостороннего назначения; *market n* — рынок; *v* — продавать; *price* — цена

The way TV sets are used will change dramatically soon. To modify TV so that it can become a multipurpose home entertainment and information centre is the purpose of a number of foreign companies and research groups. The TV set will be equipped with at least one and sometimes two playback systems.

There can be two playback modes. The first one acts as follows. Suppose a person knows he is going to miss the evening news at 6 o'clock. He could set a timer to turn on the TV

at the appointed hour and to record the program. Later he could turn on his recorder and watch the news program whenever he likes. Devices like this are already on the market. However the prices are still high and the system needs improvement.

The second playback mode is the prerecorded video "plate". It will enable the user to buy TV programs, educational shows, concerts or sporting events for viewing on his own set.

## (5) CONVERSATION PRACTICE

### I. Answer questions on Text 19A:

1. When was Isaak Newton born? 2. To what family was he born? 3. At what age did he begin the work on gravitation? 4. When was his work on gravitation published? 5. What law did he lay down in his work *Principia*? 6. What did he prove in this work? 7. What is gravitational field? 8. What is gravity? 9. What is gravity equal to? 10. Does the Moon travel a straight line path? What path does the Moon travel? 11. In what state is the Moon? 12. What are accelerations caused by? 13. What is the gravity on the surface of the Moon? 14. What is the weight of a body equal to?

### II. Solve the following problems:

1. 1 kg = . . . . . pounds-mass. 2. 1 kg = . . . . . g.  
3. 1 min. = . . . sec. 4. 1 hr = . . . . . min. 5. 1 hr = . . . . . sec.  
6. 1 m = . . . . . cm. 7. 1 m = . . . . . mm. 8. 1 km = . . . . . m.  
9. 1 cm = . . . . . m. 10. 1 mm = . . . . . cm.

### III. Express your regret (сожаление) or reproach (упрек):

Model: to do the work properly. → *St.*: It's a pity that you haven't done the work properly. You should have done it properly.

to describe the process; to involve the new data; to refer to the original work; to specify the problem; to consider the evidence; to provide the evidence; to complete the work

## (6) ENJOY YOURSELF

I knew a poet (not a very good poet) who said to a friend: "Do you think I should have put more fire (огонь) into my poems?" His friend said: "No, I really think you should have put more of your poems in the fire."

## (7) HOME EXERCISES

I. Выпишите из текста 19А английские эквиваленты следующих русских фраз:

в пределах гравитационного поля; пропорционально массе планеты; обратно пропорционально квадрату расстояния; всегда направлена к центру земли; исходя из; обуславливает вес тела; прямо пропорциональна произведению масс; по искривленному пути; непрерывное ускорение; в состоянии покоя; в очень небольшой степени; ... был осуществлен; что-то существенно отличное

II. Ответьте на следующие вопросы, выразив при этом почти полную уверенность в том, что действие происходит в данный момент или произошло в прошлом:

Model 1: Is he working now? → *St.*: He must be working now.

Model 2: Has he done it yet? → *St.*: He must have done it.

1. Have they completed the experiment? 2. Are they testing the results? 3. Is he going on with his experiment? 4. Have they made the plot of these variables? 5. Has he referred to these data? 6. Is she deriving these values? 7. Have they explained this new phenomenon? 8. Are they going on with the experiment?

III. Переведите предложения на русский язык:

1. The object of the experiment is to test the results obtained. You are to provide the necessary equipment for it. 2. They couldn't have applied that equation. They ought to have proved it mathematically. 3. They needn't know the exact temperature to make the plot. 4. He can't have explained these phenomena in this way. 5. The values given above must be converted into the English units. 6. They should have calculated the distance travelled more accurately. 7. This research team must be going on with the measurements.

IV. Переведите на английский язык, используя модальные глаголы *should* или *ought (to)* в сочетании с перфектным инфинитивом:

1. Вам следовало бы определить ускорение. 2. Нам следовало бы применить это ускорение. 3. Им следовало бы преобразовать эти величины. 4. Ей надо бы лучше изучить это явление. 5. Вам следовало бы подтвердить результаты эксперимента математически. 6. Ему следовало бы опубликовать эту статью (paper).

## TEST FOUR

Завершив работу над материалом уроков 17—19, выполните следующие упражнения. Проверьте правильность их выполнения по ключу.

I. Не прибегая к переводу предложений, по грамматическим признакам определите, в каких предложениях сказуемое выражено глаголом в страдательном залоге:

1. The energy crisis has shown the necessity for searching new sources of energy. 2. Researchers of many countries have been working for years on projects to exploit some new sources of energy. 3. It is planned to solve the world's energy problem with the technological means at our disposal. 4. In the thirties some solar energy cycles were discovered. These cycles are based on nuclear fusion. 5. In some two years the first section of the new apparatus is to go into operation. 6. The technological process is so complicated that only the basic principle of its action will be outlined here. 7. Suitable fuels could be provided by heavy and superheavy hydrogen.

II. Выберите правильную глагольную форму из предлагаемых в скобках вариантов:

1. Why don't you answer when you (*ask/are asked*)? 2. We arrived at the hotel and (*offered/were offered*) rooms. 3. We (*asked/were asked*) again and again but nobody could answer us. 4. I know I (*was waiting/was being waited*) for and went immediately. 5. I (*asked/was asked*) in my letter about the possibility to join the group.

III. Выберите английский эквивалент русского предложения из предлагаемых ниже вариантов перевода:

1. Он должен идти.  
а) *He must be going.* б) *He must go.* в) *He must have gone.*  
2. Вы, должно быть, встречались с ним в институте.  
а) *You must be meeting him in college.* б) *You must have met him in college.* в) *You must meet him in college.*  
3. Возможно, он ждет вас.  
а) *He may be waiting for you.* б) *He may have waited for you.* в) *He may wait for you.*

IV. Назовите номера предложений, при переводе которых следовало бы употребить глагол *to be* в значении долженствования:

1. По плану исследований нам предстояло выполнить пять экспериментов. 2. Мы должны были завершить всю работу к маю. 3. Из-за непредвиденных обстоятельств нам



пришлось изменить процедуру проведения двух экспериментов. 4. Мы вынуждены были отложить проведение двух экспериментов на более позднее время. 5. Сейчас нам надо наверстать упущенное время. 6. По договору мы должны получить результаты через месяц.

## *Unit Twenty*

### **(1) GRAMMAR. ИНФИНИТИВ В СОСТАВЕ СЛОЖНОГО ДОПОЛНЕНИЯ (COMPLEX OBJECT WITH THE INFINITIVE)**

В английском языке сложные члены предложения с инфинитивом переводятся на русский язык, как правило, придаточными предложениями.

Свое м н е н и е, с у ж д е н и е, п р е д п о л о ж е н и е о каком-либо лице, факте или предмете говорящий на английском языке может выразить двумя способами:

1. сложноподчиненным предложением с придаточным предложением дополнения. Например: **I believe that this value changes.**

2. простым предложением со сложным дополнением, которое состоит из существительного (в общем падеже) или местоимения (в объектном падеже) и инфинитива. Например: **I believe this value to change.** На русский язык сложное дополнение с инфинитивом переводится точно так же, как и сложноподчиненное предложение с придаточным дополнительным предложением: Я полагаю, что это значение меняется.

Сложное дополнение с инфинитивом может употребляться после глаголов, выражающих: 1) мнение, суждение, предположение: **to think, to consider, to believe, to suppose, to expect (ожидать), to know, to assume, to prove, to doubt** и др. Например:

**We consider heat to be a form of energy.**

Мы считаем, что тепло является формой энергии.

2) чувства и волеизъявления: **to wish, to want** и др. Например:

**I wish you to come again.**

Я хочу, чтобы вы пришли снова.

3) физическое восприятие и ощущения: **to see, to hear, to feel** и др.; после этих глаголов частица **to** перед инфинитивом в сложном дополнении опускается. Например:

I heard somebody speak  
in the next room.

Я слышал, как кто-то раз-  
говаривал в соседней ком-  
нате.

We observe the direction  
constantly change.

Мы наблюдаем, что на-  
правление непрерывно  
меняется.

4) приказание: **to make, to cause** в значении «заставлять». Частица **to** перед инфинитивом после глагола **to make** опускается. Например:

You must make them  
check the results careful-  
ly.

Вы должны заставить их  
тщательно *проверить* ре-  
зультаты.

Gravity causes bodies to  
fall to the earth.

Гравитация заставляет *те-  
ла падать* на землю.

Задание 1. Найдите сложные дополнения в следующих предложе-  
ниях. Переведите предложения на русский язык:

1. We find this value to be accurate enough.
2. We suppose him to deal with edge effects in electric fields.
3. I don't think this approximation to be of value in this case.
4. They expected us to have found the answer to the question.
5. Let me see it.
6. Make him explain it.

Задание 2. Переведите на английский язык:

1. Мы полагаем, что высота меняется.
2. Я думаю, что угол изменился.
3. Мы предполагаем, что сумма остается постоянной.
4. Мы видим, что вес тела возрастает.
5. Мы считаем, что данное произведение точно определяет это соотношение.

## (2) WORD AND PHRASE STUDY

1. Приставка **un-** придает слову отрицательное значение. Например: **questionable** — *сомнительный*, **unquestionable** — *несомненный, неоспоримый*.

Задание. Переведите на русский язык следующие прилагательные и причастия прошедшего времени с приставкой **un-**, имеющие отрицательное значение. Найдите корень слова:

unnumbered, unobserved, unofficial, unprovided, unpopular, unoccupied, untimely, unvarying, unwanted, unsuccessful, unscientific, unseen

2. **other than** — кроме, за исключением

3. **as far as . . . is concerned** — что касается . . . Например: **As far as length is concerned**, it varies.— *Что касается длины*, то она изменяется.

4. **the greater . . . the higher** — чем больше . . . тем выше

5. **A lighted fluorescent lamp is unlikely to be too hot to the touch.**— Маловероятно, что горящая флюоресцентная лампа будет слишком горячей на ощупь.

### (3) READING 20A

Задание 1. Внимательно прочитайте текст и найдите в нем описание источников света и причин, вызывающих их свечение.

### Sources of Light

There are different kinds of light sources, some of them are caused by high temperatures, others by some other factors. We know every source of light to have a luminous intensity, which is measurable. In general, the higher is the temperature of the source, the greater (is) the luminous intensity of the light it emits. At room temperature we see a piece of metal like platinum by the light it reflects. If we heat it until it reaches a sufficiently high temperature we can see then this piece of platinum even in a darkened room by the light it emits. We find a metal heated until it "glows" and emits light to be incandescent. Incandescence is the emission of light caused by high temperatures. To produce light by incandescence, we maintain the object we are using as a source at a high temperature relative to, say, room temperature (about 68° F). Under these conditions a substance becomes white or bright-red hot and emits light. Certain substances emit light without becoming incandescent; we consider them to be luminescent. Luminescence is the emission of light from a body from any cause other than high temperature. We consider fluorescence and phosphorescence to be particular cases of luminescence. A candle flame is an example of incandescence. The light emitted by a firefly (светлячок) is an example of luminescence. Certain substances emit visible light when ultraviolet light shines on them. We know them to be fluorescent materials. Experiment shows that ultraviolet radiation of this sort does not increase the temperature of fluorescent substances appreciably above room temperature. Light from fluorescent sources is not incandescent.

Almost immediately after an ordinary light bulb has been lit it is uncomfortably hot to the touch. As far as an ordinary light bulb is concerned it is an incandescent source. A lighted fluorescent lamp is unlikely to be too hot to the touch. It is known to be a luminescent light source. Ultra-violet light shining on zinc sulfide causes it to emit a green light. We know it to be a fluorescent source. As we have already stated, every object which emits light has a measurable luminous intensity. The sun certainly has greater luminous intensity than an ordinary electric bulb. To measure luminous intensity we have to define a unit. The unit is the Standard Candle (or more briefly, the candela). A source which has a luminous intensity of 25 candles is 25 times more intense than the candela. We define a standard candle as  $1/60$  of the luminous intensity of the light emitted by  $1 \text{ cm}^2$  of an incandescent platinum metal surface maintained at a fixed temperature  $1763^\circ\text{C}$ . One  $\text{cm}^2$  of such a surface has a luminous intensity of 60 (standard) candles. Although we define the standard candle in terms of the luminous intensity of a certain area of incandescent platinum metal surface, we use it to measure the luminous intensity of any luminous object. This means that the luminous intensity of a fluorescent lamp is also measured in a standard candle.

A source of light which is small compared to the area it illuminates is called a point source. An electric bulb illuminating a large auditorium is a point source. A small candle flame has less luminous intensity than the bulb of a large street lamp. A surface placed at equal distances from each of these sources is certain to receive more illumination from the street lamp. The illumination of a surface is called illuminance and it is the amount of light falling on unit area of the surface per second. The derived unit of illumination in SI system of units is the lux (lumen per square metre). Illuminance is directly proportional to the luminous intensity of the source. However, it depends not only on the luminous intensity of the source but also on the distance of the illuminated area from the source of light. Illuminance is inversely proportional to the square of the distance from the source.

**Задание 2. Употребите подходящие по смыслу слова из предлагаемых в скобках вариантов:**

1. We use the standard candle to measure the luminous intensity of (*only some/any*) luminous objects. 2. A source of light which is (*large/small*) compared to the area it illumi-

nates is called a point source. 3. Illuminance of a surface is (*directly/inversely*) proportional to the luminous intensity of the source and (*directly/inversely*) proportional to the square of the distance from the source. 4. The candle is a unit used to measure (*luminous intensity/illuminance*). 5. The lux is a unit used to measure (*luminous intensity/illuminance*) in SI units. 6. All luminous objects emit (*the same amount/different amounts*) of light. 7. A source which has a luminous intensity of 25 candles is 25 times (*more/less*) intense than the standard candles. 8. We define the standard candle in terms of the light emitted by 1 cm<sup>2</sup> of a(n) (*luminescent/incandescent/fluorescent*) platinum metal surface maintained at a (*random/fixed*) temperature.

**Задание 3.** Заполните пропуски подходящими по смыслу словами:

1. We see luminous objects by the light they . . . to the eye. 2. Every source of light has a luminous . . . which is . . . . . 3. An object we see by the light it reflects is said to be . . . . 4. A substance heated until it "glows" and emits light is said to be . . . . 5. We see unlit electric bulb because it . . . light which some other source of light . . . . 6. A platinum plate heated to a high temperature is an . . . . . of . . . . 7. We see the Moon at night because it . . . light which the Sun . . . . .

#### (4) READING 20B

**Задание.** Внимательно прочитайте текст про себя за 2 минуты и напишите рекламу, отражающую преимущества и характеристики вновь изобретенной лампы и области ее применения.

Слова для понимания текста: to claim — заявлять; to invent — изобретать; arc — дуга; to consume — потреблять; bulb — лампа

A miniature, high-intensity light which is claimed to be three to four times more efficient than any other lamp has been invented lately. Measuring only 2 cubic inches, this lamp is a xenon arc lamp which consumes only 150 watts of electric power but produces 200,000 candlepower of light—about 1,000 times as much as an ordinary light bulb. It is designed for use in medical instruments, photographic systems and other scientific applications. Since the spectrum of light the new lamp emits is almost identical to the Sun's, it can also be used in testing laboratories to evaluate the effect of sunlight on plastics, paints, textiles and other materials.

## (5) CONVERSATION PRACTICE

### I. Answer questions on Text 20A:

1. What problem does the text deal with? 2. What do we call (*a luminous/an illuminated*) object? 3. What is a source of light? 4. Is the Moon a source of light? 5. What kinds of light sources do you know? 6. What is incandescence caused by? 7. How can we produce light by incandescence? 8. What materials do we call fluorescent substances? 9. What kind of light source is a firefly? 10. In what units do we measure luminous intensity? 11. How was the Standard Candle defined? 12. Is the candela used for measurements of luminous intensity of incandescent sources of light only? 13. What is a point source? 14. What is illuminance?

II. Say that you expect, believe or doubt the following facts to be true.

Model: These forces are interrelated (*doubt*). → St. A.:  
Do you think **these forces to be interrelated**? St. B.:  
I doubt **them to be interrelated**.

1. The object is in the state of incandescence (*doubt*).  
2. The object emits light (*expect*). 3. The luminous intensity of this object increases (*expect*). 4. The metal becomes white hot (*expect*). 5. The glow of a firefly is fluorescent (*doubt*). 6. This source emits ultraviolet light (*believe*). 7. Illuminance is directly proportional to the luminous intensity of the source (*know*). 8. The surface is maintained at a temperature of 1763°C (*expect*).

III. Give the definition of incandescent, luminescent and fluorescent sources of light.

## (6) ENJOY YOURSELF

When George Bernard Shaw was still a young music critic, he was once invited to a party. When he came into the sitting-room, the daughter of the house was playing the piano. As soon as she saw who the guest [gest] was, she stopped and said to him, "I've heard you're very fond of music."

"I am," Shaw replied, "but never mind, go on playing."

---

party *n* — вечер, прием гостей; never mind — не беспокойтесь, неважно

## (7) HOME EXERCISES

I. Выпишите из текста 20А эквиваленты следующих русских словосочетаний:

по любой причине, кроме . . . ; частные случаи; неприятно горяча на ощупь; что касается . . . ; в 25 раз интенсивнее; количество света; точечный источник; интенсивность свечения; источник света; на основании интенсивности свечения

II. Ответьте на следующие вопросы. Выскажите свое мнение (суждение) о происходящем, употребив глагол, указанный в скобках:

Model 1: Does this value change? (*expect*) → We expect it to change.

1. Does this metal become glowing at 300°C? (*expect*)
2. Is the luminous intensity of a firefly measurable? (*know*)
3. Does platinum become glowing at this temperature? (*assume*)
4. Does this substance emit visible light? (*see*)
5. Is light from a fluorescent lamp incandescent? (*doubt*)
6. Are the two surfaces at equal distance from the point source? (*find*)

Model 2: Have they considered the problem yet? (*believe*)  
→ We believe them to have considered it.

7. Has he made the necessary measurements yet? (*expect*)
8. Have they checked the results yet? (*believe*)
9. Have they accounted for this effect? (*expect*)
10. Has this value changed? (*assume*)
11. Has the platinum plate reached a sufficiently high temperature? (*believe*)
12. Has she found an answer to this problem? (*doubt*)

III. Переведите на английский язык, используя Complex Object:

1. Я хочу, чтобы вы рассмотрели этот вопрос сейчас.
2. Он полагает, что они скоро завершат работу.
3. Она ожидает, что мы получим хорошие результаты.
4. Мы ожидаем, что вы опишите это подробно.
5. Он заставил меня повторить измерение.
6. Я слышал, как они обсуждали этот вопрос.

## Unit Twenty One

### (1) GRAMMAR. ИНФИНИТИВ В СОСТАВЕ СЛОЖНОГО ПОДЛЕЖАЩЕГО (COMPLEX SUBJECT WITH THE INFINITIVE)

Мнение (суждение или предположение) группы неопределенных лиц о каком-либо лице (факте или понятии) говорящий на английском языке может выразить двумя способами:

1) сложноподчиненным предложением с придаточным предложением-подлежащим. Например: **It is said** that this value changes. *Известно*, что это значение меняется. **It is expected** that she will come tomorrow. *Ожидают*, что она прибудет завтра.

2) простым предложением со сложным подлежащим, в состав которого входит имя существительное (в общем падеже) или местоимение (в именительном падеже) и инфинитив. Все предложение имеет следующую структуру:

Существительное (в общем падеже) Местоимение (в именительном падеже)	Сказуемое	Инфинитив
The value He	is said is expected	to change. to come.

т. е. между существительным и инфинитивом стоит сказуемое предложения, выражающее мнение, суждение или предположение.

This value is said to change.      *Известно*, что это значение меняется.

She is expected to come.      *Ожидают*, что она приедет.

Мнение, суждение, предположение в таком предложении может быть выражено следующими глаголами:

1) в страдательном залоге:



This value	{	is said	to change (to be changing) (to have changed)	Известно, ...
		is supposed		Предполагают, ...
		is expected		Ожидают, ...
		is assumed		Допускают, ...
		is reported		Сообщают, ...
		is considered		Считают, ...
		is proved		Доказано, ...
		is found		Найдено, ...
		etc.		и т. д.

2) в действительном залоге:

This value	{	seems	to change (to be changing) (to have changed)	По-видимому ...
		appears		Оказывается ...
		turns out		"
		proves		"
		is likely		Вероятно ...
		is unlikely		Маловероятно ...
		is sure		Безусловно ...
		is certain		Непрерывно ...

Предложения такого типа переводятся на русский язык сложноподчиненными предложениями.

Перевод английского предложения следует начинать со сказуемого предложения и переводить его неопределенно-личным предложением «Известно ...», «Находят ...», «Считают ...» и т. д., за которым следует придаточное предложение с союзом *что*.

Первый элемент сложного подлежащего (именная часть) переводится подлежащим придаточного предложения, а второй (инфинитив) — сказуемым. Например: **This device** (именная часть) **appears to be of some interest** (инфинитив). *По-видимому*, этот прибор представляет интерес. **It is supposed to be used in our experiment.** *Предполагается*, что он будет использован в нашем эксперименте.

Форма инфинитива находит свое отражение в форме и времени сказуемого русского предложения. Например: **They are believed to work (to be working/to have worked)** at this problem. *Полагают*, что они *работают (работают в данное время/работали)* над этой проблемой.

В отрицательных предложениях отрицание **not** при переводе обычно относится к инфинитиву, если сказуемое предложения выражено глаголом в действительном залоге. Например: **This phenomenon does not appear to have been studied.** *По-видимому*, это явление *не было изучено*.

Если сказуемое выражено глаголом в страдательном залоге, то отрицание обычно относится к сказуемому. Например: This reaction **was not expected** to start at lower temperatures. *Не предполагали*, что эта реакция начнется при более низкой температуре.

**Задание 1.** Прочитайте и переведите на русский язык следующие предложения:

1. Light is proved to travel in straight lines. 2. Light intensity proves to be measurable. 3. The speed of light in free space is proved to be a measured constant. 4. This property seems to refer to a restricted number of materials. 5. The property appears to have been mentioned frequently in the past. 6. They are likely to be familiar with this phenomenon. 7. The sum is assumed to provide an appropriate solution to the problem.

**Задание 2.** Выразите предположение (суждение) с помощью глаголов, указанных в скобках:

Model: The value increases (*assume*). → St.: The value is assumed to increase.

1. These values are in good agreement with the experimental ones (*consider*). 2. This density changes with temperature (*know*). 3. The magnitude provides slow shift in energy (*be likely*). 4. The product contains two components (*assume*). 5. The distance is shown indirectly (*expect*). 6. The altitude is uniform during this period of time (*seem*). 7. The path is reduced twice (*appear*). 8. The value is derived from the above equation (*suppose*).

## (2) WORD AND PHRASE STUDY

1. Префикс **in-** имеет отрицательное значение, указывает на отсутствие какого-либо качества. Например: **active** — активный; **inactive** — бездеятельный, инертный.

**Задание.** Пользуясь списком английских прилагательных в левой колонке, переведите русские прилагательные с противоположным значением в правой колонке:

convenient, accurate, definite, visible, considerable, constant, adequate, direct, divisible, exact

неделимый, неудобный, неточный, переменный (непостоянный), незначительный, неадекватный, косвенный, невидимый

2. **a dotted line** — пунктирная линия

3. **e.g. (Lat.)** — например

### (3) READING 21A

**Задание 1.** Внимательно прочитайте текст и найдите в нем определение таких физических понятий, как *луч света*, *пучок света*, «*правильное*» и *диффузное отражение*.

## Photometry. Reflection and Refraction of Light

In the previous text we introduced the science of optics qualitatively in terms of certain properties and concepts used to describe optical phenomena. The branch of optics which involves quantitative measurements of the intensity of light and the illumination provided by different sources on surfaces at varying distances from the source is called photometry.

Photometry together with the reflection of light constitute an introduction to what is often called geometrical optics, because it leans heavily on the comparison of light "rays" with the directed straight lines called rays in geometry.

The basic principles and equations of reflection and refraction are derived from the assumption of simple geometric (and trigonometric) relations between incident and reflected, and incident and refracted light rays. Geometrical optics accounts for a large amount of what we know about the phenomena of reflection from plane and curved mirrors. The distorted forms you laugh at in those curved mirrors at the Fun House are accounted for by simple geometrical principles.

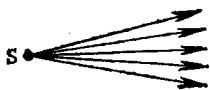


Fig 1

It is convenient to think of light as leaving a source in the form of an indefinitely large number of rays. In Fig. 1 the arrows represent rays of light leaving S (a source).

Rays of light from the same point source are not parallel to each other, since they must intersect at their common



Fig 2

source. However, as they get farther from their source, e.g. beyond the dotted line in Fig. 2, they appear more parallel to each other.

A collection of parallel (or almost parallel) rays of light constitute a beam of light. We have found it convenient to study certain optical phenomena as if light leaves a source as an indefinite number of particles travelling in straight lines. We call the path followed by any one of these imaginary particles a ray of light. A group of such particles travelling (almost) parallel paths is called a beam of light. One of the optical phenomena which can be studied by using rays is reflection. Rays (and beams) of light bounce off certain surfaces, e.g. mirrors.

The ray which strikes the mirror is said to be the incident ray. The ray which leaves the mirror is known as a reflected ray.

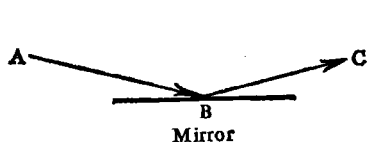


Fig. 3



Fig 4

ray. See Fig. 3, AB in this figure is the incident ray; BC is the reflected ray. AB, CD and EF in Fig. 4 constitute an incident beam of light. BK, DV and FP constitute a reflected beam.

Regular reflection occurs when a beam of parallel rays is reflected as a beam of parallel rays. When a beam of parallel rays is reflected in all different directions, we have diffuse

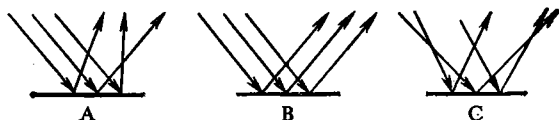


Fig 5

reflection. Which figure above illustrates regular reflection? (A/B/C). Which illustrates diffuse reflection? (A/B/C). (Fig. 5).

Regular reflection occurs when light is reflected from a highly polished surface like a mirror, a metal plate, etc. The light reflected from a polished silver plate is an example of regular reflection. The light reflected from a rough, coarse surface such as a concrete wall, a ground glass surface, etc. is an example of diffuse reflection.

You see a piece of chalk by the light it reflects to your eyes. It is therefore considered to be an illuminated object.

Compared to the surface of a mirror, the surface of the chalk is rough and coarse in texture. The light reflected to your eyes by the chalk results from diffuse reflection, but you see the image in the mirror because of regular reflection from the mirror. Light is known to be diffusely reflected from the chalk to mirror.

**Задание 2.** Употребите подходящие по смыслу слова из предлагаемых в скобках вариантов:

1. A beam of light which strikes a mirror is (*a reflected/an incident*) beam. 2. Diffuse reflection occurs when a beam of parallel rays is reflected as a beam of (*parallel/non-parallel*) rays. 3. Regular reflection occurs when light is reflected from a (*coarse/highly polished*) surface. 4. Light is (*regularly/diffusely*) reflected from a rough, coarse texture. 5. Diffuse reflection occurs when light is reflected from a (*mirror/concrete wall*).

**Задание 3.** Заполните пропуски соответствующими словами:

1. We call the ray which bounces off the mirror a . . . ray. 2. A group of nonparallel rays of light doesn't constitute a . . . of light. 3. A rough coarse surface is an example of . . . reflection. 4. The reflected rays in a regular reflection are . . . . 5. A highly polished metal surface is an example of . . . reflection.

**Задание 4.** Скажите, какое отражение дадут следующие поверхности:

mirror; chalk; concrete; a highly polished metal surface

#### (4) READING 21B

**Задание 1.** Внимательно прочитайте отрывок из речи Гэса Холла. Найдите в тексте объяснение причин, порождающих безработицу в США.

Слова для понимания текста: *sick* — больной; *layoff* — увольнение; *profit* — прибыль; *to invest* — вкладывать деньги; *poverty* — бедность; *devastation* — разорение; *community* — поселение

#### Sick Industries

In the US basic industries such as steel, auto, rubber, machine building and more are suffering from chronic crises and whole industries and regions are sick and dying. This

phenomenon of sick industries and **plant closings** exposes the **criminal inhumanity** of the capitalist system, because along with the plant closings comes the layoff of thousands upon thousands of workers and the devastation of whole communities.

**\*Because of the profit motive**, the complete lack of planning and **mismanagement** by corporations and monopolies, plants have been permitted to grow old and **fall apart** and the monopolies are **on strike** refusing to invest in new plants and machinery. So while new plants and industries are opening up throughout the Soviet Union, in the US in one year alone more than 1,200 plants have been closed and hundreds of thousands of workers and their families thrown out of work and **into poverty**.

From the report by Gus Hall, *Daily World*,  
May 14, 1981.

Задание 2. Объясните, как вы понимаете выделенные в тексте слова и словосочетания.

Задание 3. Переведите на русский язык предложения, помеченные звездочкой.

## (5) CONVERSATION PRACTICE

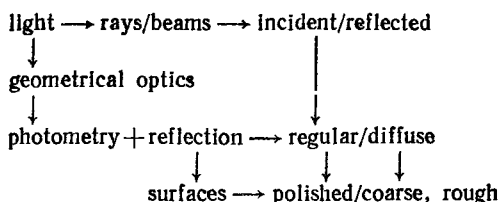
### I. Answer questions on Text 21A:

1. What is photometry? 2. What does photometry involve? 3. What is a ray/beam of light? 4. What is an incident/a reflected ray? 5. What is regular/diffuse reflection? 6. From what surfaces does regular/diffuse reflection occur?

### II. Put questions to the words given in bold type:

1. For the **basic principles and equations of reflection** to be derived we assume simple geometric relations between incident and reflected light rays. 2. **Light** was assumed to leave a source as an **indefinite number of particles travelling in straight lines**. 3. We observe rays of light from the same point source to be **nonparallel to each other**. 4. The path to be followed by any one of these imaginary particles is called a ray of light. 5. The ray **to strike the mirror** is called the incident ray. 6. The **light to be reflected from a polished silver plate** is an example of regular reflection. 7. For the **diffuse reflection to occur** a beam of parallel rays is to strike a rough, coarse surface.

III. Discuss the problems concerned with light using the scheme given below;



IV. Student A. asks for some information. Student B. answers that to his surprise the action proved to have been done:

Model: to measure the frequency → St. A.: Have they measured the frequency? St. B.: It proved to have been measured.

to complete the measurements; to accept the idea; to suggest the procedure; to confirm the results; to explain the effect; to publish the results; to reduce the number; to separate the substances

## (6) ENJOY YOURSELF

### A Singular Man

Brother: Are you really going to marry (выходить замуж) that young man Jones? He is said to be kind and very clever. But isn't he a bit strange (странный)? At any rate (во всяком случае) he is unlike other young men.

Sister: I am going to marry Jones, and I don't find anything strange about him. And then if he is indeed unlike other young men, he is likely to make a very good husband.

## (7) HOME EXERCISES

I. Измените следующие предложения, употребив при этом выражение *as far as ... is concerned*:

Model: This amount is too great. → As far as this amount is concerned, it is too great.

1. This temperature is too high. 2. This substance is quite uniform. 3. The data are quite precise. 4. The results are quite definite. 5. The distance is too great. 6. The increase is too sharp.

II. Выпишите из текста 21А английские эквиваленты следующих русских словосочетаний;

основные принципы и уравнения; выводится из допущения; на основании определенных свойств; геометрическая оптика объясняет . . . ; бесконечно (неопределенно) большое число; в различных направлениях; тщательно полированная поверхность; по сравнению с . . . ; пунктирная линия; вместе с . . . ; за пределы; введение в . . . ; в виде (в форме) . . . .

III. Напишите ответы на следующие вопросы, высказав при этом общепринятое мнение относительно данного вопроса. Используйте глаголы в скобках:

Model: Does the Earth travel in a curved path around the Sun? (*prove*) → The Earth is proved to travel in a curved path around the Sun.

1. Does photometry involve quantitative measurements of intensity? (*know*) 2. Does photometry constitute an introduction to geometrical optics? (*consider*) 3. Does geometrical optics account for the phenomena of reflection? (*assume*) 4. Does light leave a source in the form of a large number of rays? (*find*) 5. Do the arrows of Fig. 1 represent rays of light? (*suppose*) 6. Does a collection of parallel rays of light constitute a beam of light? (*believe*)

IV. Переведите на английский язык:

1. Известно, что эти вещества имеют сходные свойства. 2. Известно, что эти свойства тщательно изучались. 3. Эти данные, по-видимому, являются весьма приблизительными. 4. По-видимому, прибор работал без поломок (break-down). 5. Предполагается, что он будет использован в нашем эксперименте. 6. Оказалось, что они уже пользовались подобным прибором.

## Unit Twenty-Two

### (1) GRAMMAR. THE INFINITIVE. REVISION EXERCISES

I. Переведите следующие предложения на русский язык. Обратите внимание, что глагол *to prove* в действительном залоге переводится словом «оказывается», а в страдательном — словом «доказано»:

1. They proved to have provided all for the experiment. 2. The technique proved to be a success. 3. Lasers proved to be of great help in medicine and industry. 4. An ordinary light was proved to consist of waves all out of phase with



each other. 5. All the waves in a laser beam were proved to have the same wavelength. 6. A laser beam proved to have a very definite colour. 7. The laser beam proved to be intermittent.

**II. Найдите сказуемое в предложениях. Определите синтаксическую функцию инфинитива в предложении и переведите предложения на русский язык:**

1. The predicted precision was found to be difficult to obtain in practice. 2. Five or six orbit elements are known to be determinable. 3. Another important element in the filter technique to be treated in the equations is the parameter of observability. 4. The purpose of the experiment is to provide evidence of diffraction of light. 5. We are to provide all the necessary equipment for the experiment to be carried out successfully. 6. This is the type of procedure to be followed to obtain accurate results. 7. The results presented here are supposed to indicate the type of procedure to obtain exact measurements. 8. To overcome this problem we return to the results listed in Table 2 where the initial weights are given. 9. To come to an approximate solution these values are assumed to be zero. 10. The present paper will present an attempt to apply a form of the Kalman filter to such systems to determine both the state estimation (оценка) and the time delay (задержка).

## (2) WORD AND PHRASE STUDY

Суффикс **-able/-ible** выражает способность к совершению какого-либо действия. Например: **to measure + -able = measurable** — *измеримый, поддающийся измерению*; **to response + -ible = responsible** — *ответственный, способный нести ответственность*.

**Задание 1.** Образуйте прилагательные от следующих, известных вам, глаголов и переведите эти прилагательные на русский язык:

account, explain, prove, reduce, distinguish, convert, compare, achieve, refer, expand, advise, adopt, move

**Задание 2.** Пользуясь списком глаголов в левой колонке, переведите на английский язык прилагательные в правой колонке:

account, response, imagine, predict, accept, favour, convert, expect, compare, achieve, expand

сравнимый, достижимый, объяснимый, вообразимый, предсказуемый, приемлемый, благоприятный, обратимый, способный к расширению

### (3) READING 22A

Задание 1. Внимательно прочитайте текст и отметьте характерные изменения представлений ученых о природе света.

## Theories of Light

A theory is a set of assumptions suggested by observations to explain the observations and to predict successfully other observations which result from experiments suggested by the theory.

In this text we examine two theories of light: the corpuscular and the wave theories. Historically, both theories were developed at about the same time, the corpuscular by Newton and the wave theory by a Dutch physicist named Huyghens. Largely due to Newton's great prestige and to the lack of observed evidence of diffraction of light, the corpuscular theory was initially the one accepted by most scientists.

We will try to examine the evidence for the corpuscular theory and the area in which it is weak.

### THE CORPUSCULAR THEORY OF LIGHT

Part of the work of scientists is to develop groups of assumptions which explain their observations and the results of their experiments. For instance, one group of assumptions, formulated to explain the properties and the observed behaviour of gases, is called the kinetic theory of gases. We have observed several properties of light, among them reflection, refraction, propagation, etc. A group of assumptions which enables us to explain these observations will constitute a theory of light.

A theory of light was formulated by Newton several centuries ago and was called the "corpuscular theory". Newton assumed that light was made up of many small particles (he called them corpuscles) moving at high speed. An

adequate theory of light must explain our observations about light. Hence the corpuscular theory to be an adequate one it must explain the formation of shadows by opaque objects.

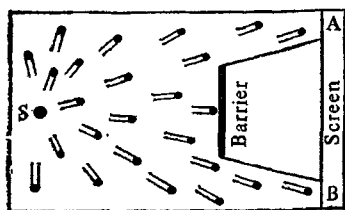


Fig 6

Fig. 6 represents light particles leaving a source S in many different directions. Because of the barrier no particles will hit the screen between points A and B.

Using the terminology of the corpuscular theory of light, the part of the screen between A and B is in a shadow because no light particles from S strike it. The corpuscular theory explains the formation of shadows and provides a reasonable explanation of the law of reflection. And so according to the corpuscular theory a beam of light is a collection of very small particles travelling at high speed. A beam of such particles shining on a reflecting surface is similar to the molecules of a gas bombarding the walls of a container.

The original corpuscular theory was abandoned in the middle of the nineteenth century in favour of the wave theory of light first put forward in 1678 and developed by Young at the end of the 18th century. Later research has shown, however, that light phenomena must be interpreted in terms of photons and waves, so as the two descriptions are merely two different ways of viewing one and the same reality. Thus, for example, the wave model of the electron is complementary to the particle model.

**Задание 2. Употребите подходящие по смыслу слова из предлагаемых в скобках вариантов:**

1. A theory is a set of (*predictions/assumptions*) which enables us to explain observations. 2. The corpuscular theory was initially the one (*accepted/abandoned*) by most scientists. 3. The corpuscular theory to be an adequate one it (*must/needn't*) explain the formation of shadows by opaque objects. 4. The corpuscular theory (*explains/doesn't explain*) the formation of shadows. 5. The corpuscular theory (*provides/doesn't provide*) a reasonable explanation of the law of reflection.

#### (4) READING 22B

**Задание 1. Прочитайте текст быстро, но внимательно. Назовите по-английски три основные характерные черты, отличающие лазерный луч от простого луча света.**

Слова для понимания текста: *amplification* — усиление; *step* — шаг; *intermittent* — прерывистый; *to diverge* — расходиться; *dim* — тусклый

## Laser

Do you know what the word "laser" means? It means "Light Amplification by Stimulated Emission of Radiation". Quite simple, isn't it? But let's see what a laser beam is and what special there is about a laser beam, that makes it different from other beams of light.

We know, that light consists of waves. These waves are very short—much too short to be seen directly. \*An ordinary light consists of waves all out of phase, out of step with each other. White light or sun-light is also a mixture of every possible wavelength. \*Waves of red light are about twice as long as waves of blue light.

All the waves in a laser beam have the same wavelength. A laser beam has a very definite colour. The red colour of the ruby is one of the most widely seen colours in them. But the difference between an ordinary beam of ruby red light and a laser beam of ruby red light is that in the laser beam the waves are also all in step with each other. \*So compared with the ordinary beam of light, the laser beam is a very orderly affair indeed. \*This orderly behaviour of the laser beam makes a big difference, and there's one more difference to be mentioned. Most beams of light, like the car headlamps, for example, are continuous. They shine all the time. \*But the laser beam is intermittent, and it's off much longer than it's on. Because these switches on and off are very fast, the eye doesn't see them. \*While the laser beam is off the energy for the next flash is building up, and when it comes, it's a very intense flash indeed. So lots of power can be packed into a laser beam. Besides that, an ordinary beam of light diverges. \*It gets wider and wider, and therefore dimmer and weaker as it goes on. But a laser beam doesn't diverge in this way. So it carries its energy in a compact form, until it's absorbed when it strikes something opaque.

Задание 2. Переведите на русский язык предложения, помеченные звездочкой.

### (5) CONVERSATION PRACTICE

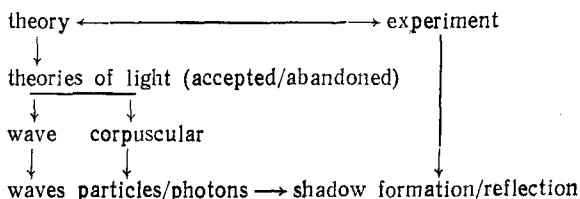
#### I. Speak on Text 22A.

Ask your friends:

1. if the two theories of light were developed at about the same time; 2. if the corpuscular theory was initially accepted by most scientists; 3. if any theory of light is a group

of assumptions to explain observations; 4. if the corpuscular theory of light was formulated by Young; 5. who the corpuscular theory was formulated by; 6. when the corpuscular theory was developed; 7. what theory of light was developed almost at the same time; 8. who the wave theory of light was developed by; 9. why the corpuscular theory was initially accepted by most scientists; 10. when the corpuscular theory was abandoned.

II. Discuss the theory of light problems and experimental procedure staged by Newton using the scheme given below:



## (6) ENJOY YOURSELF

*Professor:* You missed my class yesterday, didn't you?

*Student:* Not in the least, sir, not in the least.

*miss v* — пропускать лекции, занятия; скучать о; *not in the least* — нисколько, ни в коей мере

## (7) HOME EXERCISES

I. Выпишите из текста 22A английские эквиваленты следующих русских словосочетаний:

свет состоит из . . . ; согласно корпускулярной теории . . . ; в пользу волновой теории света; всего лишь два различных пути рассмотрения . . . ; . . . дает нам возможность объяснить; . . . которые являются результатом экспериментов; вследствие высокого престижа . . .

II. Запишите следующие предложения, употребляя выражение *as far as . . . is concerned* для смыслового усиления фразы. Переведите предложения на русский язык:

**Model:** Photometry involves quantitative measurements of the intensity of light. → *St.:* As far as photometry is concerned it involves quantitative measurements of the intensity of light.

1. The directed straight lines are called rays in geometry.
2. Geometrical optics accounts for the phenomena of reflection.
3. The distorted forms in curved mirrors are accounted for by simple geometrical principles.
4. Light leaves a source in the form of an indefinitely large number of rays.
5. The arrows in Fig. 1 represent rays of light leaving a point source.
6. Rays beyond the dotted line appear to be more parallel.

III. Переведите предложения на русский язык, обращая внимание на перевод инфинитива в различных функциях:

1. More than 100 elements are supposed to be there on the Earth.
2. We know each element to be made of one kind of atoms.
3. A final problem to be explained was why all atoms of the same element are exactly the same.
4. For this effect to be understood researchers had to carry out a lot of experiments.
5. Here is the apparatus likely to give the results required.
6. These new phenomena are to be considered in the next section.
7. Objects are said to be warm, hot, cool, or cold compared with the temperature of the human body.
8. Einstein's theory of light was developed to account for the photoelectric effect.
9. The method didn't prove to be of any help to us.
10. The lack of data is certain to slow down the work.

IV. Переведите на английский язык:

1. Оказалось, что поведение прибора в этих условиях резко меняется.
2. Доказано, что эти два различных пути рассмотрения вопроса практически являются одним и тем же.
3. Оказалось, что исходные данные были более точными.
4. Известно, что корпускулярная теория света объясняет образование теней.
5. Полагают, что они остановили работу из-за (because of) отсутствия необходимых материалов.
6. Результаты работы, вероятно, дадут возможность объяснить нашу ошибку.

## TEST FIVE

Завершив работу над материалом уроков 18—22 по грамматической теме «Инфинитив», выполните следующие упражнения. Проверьте правильность их выполнения по ключу.

I. Назовите номера предложений, в которых форма инфинитива (выделенная курсивом) выполняет роль обстоятельства цели и на русский язык переводится союзом *для того, чтобы*:

1. *To exploit* new sources of energy is the most urgent problem of today. 2. *To solve* this problem the researchers have been working hard for years. 3. *To exploit* the whole of the Sun's energy is one of the researchers' long term aims. 4. *To do it* as quickly as possible we are to increase scientific efficiency. 5. *To increase* scientific efficiency is to raise the productivity of our industry. 6. *To improve* our citizens' working and living conditions our government pays much attention to all of these problems. 7. For these problems *to be carried out* successfully we are to work hard. 8. Much is to be done in this field for this key problem *to be solved* successfully.

II. Назовите номера предложений, в которых форма инфинитива выполняет роль определения и переводится на русский язык определительным придаточным предложением, начинающимся союзом *который*:

1. This is the key problem **to be solved** immediately. 2. For this key problem **to be solved** immediately much is to be done. 3. We **are to solve** this key problem immediately. 4. These are the main sources of energy **to be exploited**. 5. The main sources of energy **to be exploited** in future are the energy of the Sun and nuclear energy. 6. For energy of the Sun **to be exploited** to the full the researchers are developing new techniques.

III. Назовите номер английского предложения, дающего адекватный перевод русского предложения:

1. Вот фото человека, который должен придти сюда.

a) The picture of the man to come is here. б) There is a picture of the man to come here. в) This is the picture of the man to come here.

2. Считают, что цена слишком высока.

a) The price they are to pay is too high. б) They found the price to be too high. в) The price is found to be too high.

3. Оказалось, что они заплатили эту цену.

a) They are proved to pay this price. б) They proved to pay this price. в) They proved to have paid this price. г) They are proved to have paid this price.

IV. Употребив глагол в скобках, выразите свое личное отношение к следующим положениям:

1. The process is too complicated. (*find*) 2. The same physical law applied to another problem. (*think*).

**V. Употребив глагол в скобках, выразите общепринятое мнение относительно следующих положений:**

1. The number of automatically controlled systems will rise to 50%. (*expect*) 2. The electrical engineering industry has made one more important contribution. (*know*)

## Unit Twenty-Three

### 1) GRAMMAR. ПРИЧАСТИЕ, ЕГО ФОРМЫ И СИНТАКСИЧЕСКИЕ ФУНКЦИИ В ПРЕДЛОЖЕНИИ (THE PARTICIPLE)

Причастие — это неличная форма глагола, совмещающая в себе свойства глагола, прилагательного или наречия.

Свойства глагола	Свойства прилагательного или наречия
1) имеет видо-временные формы 2) имеет формы залога 3) может иметь прямое дополнение 4) определяется наречиями	1) в предложении выполняет функцию определения или обстоятельства и соответствует русскому причастию или деепричастию 2) может входить в состав именного или глагольного сказуемого

В современном английском языке имеется развитая система форм причастия.

Действительный залог			Страдательный залог
Participle I	Indefinite	writing (V-ing)	being written (being + V <sub>3</sub> )
	Perfect	having written (having + V <sub>3</sub> )	having been written (having been + V <sub>3</sub> )
Participle II	Indefinite		written/studied (V <sub>3</sub> /V-ed)



Причастие выполняет только две синтаксические функции в предложении — определения или обстоятельства.

1. **О п р е д е л е н и е** соответствует русскому причастию.

a **falling** star  
the people **waiting for** you  
a **recorded** talk

*падающая звезда*  
*люди, ожидающие вас*  
*записанная на пленку беседа*  
*армия, потерпевшая поражение*

2. **О б с т о я т е л ь с т в о** соответствует русскому деепричастию или целому придаточному предложению.

I spent most of the time  
**answering** questions.

*... отвечая на вопросы ...*

**Having turned out the**  
**light** we left the house.

*Выключив свет ...*

**Well done** the device will  
function properly.

*Если устройство хорошо выполнено ...*

**When arranged** the elements  
exhibited ...

*При соответствующем расположении ...*

Причастие I (перфектная форма) выполняет единственную синтаксическую функцию обстоятельства и соответствует русскому деепричастию или придаточному предложению.

**Having received the telegram** I answered it at once.

*Получив телеграмму, я ...*

**Having been given due attention** the problem was  
successfully solved.

*После того как этой проблеме уделили должное внимание, она была успешно решена.*

**Задание.** Найдите сказуемое, определите синтаксическую функцию причастия в предложениях и переведите эти предложения на русский язык:

1. The students spoken about at the meeting yesterday completed this work successfully. 2. The task set was not an easy one. 3. Some very complicated models are investigated in the paper. 4. The latest model now being tested accounts for many of the previously unknown phenomena. 5. For the investigation being conducted at present the lack of such data is of no importance. 6. As a starting point of the investigation the algorithms developed in the paper were exercised

in various models. 7. The algorithm chosen in this study is a simplified and slightly modified version of Wagner's model, which is one of the models presented in Reference 1. 8. The results obtained showed the stability of the system under conditions given above.

## (2) WORD AND PHRASE STUDY

1. При помощи суффикса *-ance/-ence* образуются существительные, обозначающие отвлеченные (абстрактные) понятия от соответствующих глаголов. Например: **to interfere + -ence = interference.**

Задание. Пользуясь глаголами в левой колонке, образуйте с помощью суффиксов *-ance/-ence* английские эквиваленты русских существительных, приведенных в правой колонке:

to depend, to accept, to	предпочтение, зависи-
occur, to refer, to appear,	мость, различие, появле-
to prefer, to differ	ние (вид), ссылка, приня-
	тие ( <i>напр.</i> гипотезы), со-
	бытие (случай)

2. Приставка **mono-** имеет значение «одно (моно)». Например: **monodirectional — мононаправленный.**

## (3) READING 23A

Задание 1. Внимательно читайте текст и одновременно рисуйте в тетради схему экспериментальной установки, разработанной Т. Юнгом с целью доказать волновую природу света.

### The Wave Theory of Light (Diffraction Gratings)

At the end of the 18th century Young not only did but also developed an experimental procedure for measuring the wavelength of light. In his experiment Young showed that light exhibited diffraction and interference and that was a good evidence for the wave theory of light. When this was done it was quite obvious why diffraction and interference of light waves had not been readily observed before.

Young's double-slit experiment provides a quantitative measure of the wavelength and frequency of light waves. Indirectly it enables us to explain why we do not usually observe diffraction of light as it passes through windows, doors, etc. The wavelength of light is too small to show observable diffraction under ordinary conditions.

In Young's double slit experiment sunlight is allowed to pass through a monochromatic green filter. Green light strikes screen B, containing a small slit S equidistant from slits  $S_1$  and  $S_2$  in another screen C. Light from S passes through  $S_1$  and  $S_2$  and finally falls on screen D where it produces bright spots or bands separated by dark areas. The light used in this experiment was monochromatic green colour. The distance between the second screen with slits  $S_1$  and  $S_2$  and the third screen on which the interference pattern appears is 2 m. The slit S in the first screen provides a point source. The purpose of slits  $S_1$  and  $S_2$  is to provide point sources of light which will interfere and produce bright spots on the third screen. Replacing the green filter with a monochromatic red filter we find that the distance between the bright spots on the third screen increases. It means that the wavelength of red light is longer than that of green. When a violet filter is used in this experiment the distance between the bright spots is less than it is for green light. This means that the wavelength of violet light is less than the wavelength of green light.

To make the interference pattern wider (and thus easier to examine) the slit separation must be made smaller. If many slits (rather than just two) are used, it is reasonable to believe that more light will get through to form the interference pattern. The separation for the two slits in Young's experiment is usually about 0.05 cm. If a great number of slits with very small separation is produced, e.g. as many as 4000 slits to a  $\text{cm} \frac{1 \text{ cm}}{4000} = 0.00025 \text{ cm}$  or  $2.5 \times 10^{-4} \text{ cm}$  the result will be a diffraction grating. In a diffraction grating the dark spaces in the interference pattern are broader because the slit separation is less than it is for the double slit. Because more light gets through many slits than it does through two, the bright spaces are brighter in a diffraction grating.

The wavelength of monochromatic yellow light is smaller than the wavelength of monochromatic red light. If we use a diffraction grating to produce interference patterns for yellow light and then use the same grating to produce a pattern for red light, the distance between the red spots will be greater than that for yellow spots.

**Задание 2.** Употребите подходящие по смыслу слова из предлагаемых в скобках вариантов:

1. The wavelength of light is too (small/great) to show observable diffraction under ordinary conditions. 2. Young's double-slit experiment provides a (qualitative/quantitative) measure of the wavelength and frequency of light waves. 3. Young's double-slit experiment (directly/indirectly) enables us to explain why diffraction is not observable under ordinary conditions. 4. To make interference pattern wider and thus easier to examine the slit separation in a diffraction grating must be made (smaller/larger). 5. If many slits (rather than just two) are used it is reasonable to believe that (more/less) light will get through to form the interference pattern. 6. In a diffraction grating the dark spaces in the interference pattern are (narrower/wider) because the slit separation is (greater/less) than it is for the double slit. 7. The distance between bright spots in an interference pattern (increases/decreases/remains the same) as the wavelength of light used increases.

**Задание 3. Заполните пропуски подходящими по смыслу словами:**

1. The experimental . . . for measuring the wavelength of light was developed by Young. 2. In this experimental . . . green light strikes . . . B, which contains small . . . S. 3. The purpose of the slits is to provide . . . sources of light. 4. Having passed through slits  $S_1$  and  $S_2$  light finally falls on the third . . . where it produces bright . . . or . . . separated by . . . areas. 5. Many slits drawn parallel to each other in a piece of glass through which light will form an interference pattern constitute a . . . . . 6. Light exhibits diffraction and interference and that is a good evidence for the . . . theory of light. 7. The interference pattern formed by the . . . . . is generally sharper and easier to examine.

#### (4) READING 23B

**Задание. Прочитайте текст в быстром темпе, но внимательно. Выберите из текста 3—4 предложения в усеченном виде, чтобы передать основную идею текста.**

**Слова для понимания текста:** *conventional* — обычный, общепринятый; *tube* — трубка; лампа электронная, электронно-лучевая трубка; *to substitute* — заменять; *circuit* — цепь, схема; *to blend* — смешивать, блендировать (*в оптике*)

## Laser TV

Experiments staged in Moscow at the Lebedev Physical Institute of the USSR Academy of Sciences, confirmed the possibility of making colour projection TV sets in which the conventional picture tube is replaced by a laser one.

In an ordinary TV set an electron beam causes the luminous image to appear on the tube. The Institute's specialists proposed substituting the laser tube for the conventional one without changing the set's circuit. The screen is a small, thin specially treated transistor plate. The controlled electron beam, one thousandth of a centimetre thick scans one line after another on the plate, just as in a conventional TV picture tube, and causes the luminescent picture to appear.

Soviet scientists' research has shown that the luminosity of a screen one square centimetre in area is so great that the picture can be projected onto any other screen (like that in the cinema) several square meters in size. Laser plates made of different transistor materials will produce emissions of any colour. Blending the light emission of three laser screens (red, green and blue) makes it possible to obtain a colour picture.

### (5) CONVERSATION PRACTICE

#### I. Answer questions on Text 23A:

1. Who developed the first experimental procedure for measuring the wavelength of light? 2. When did Young develop this experimental procedure? 3. Why hadn't diffraction and interference of light been observed earlier? 4. What is diffraction and interference a good evidence for? 5. How was Young's double-slit experiment made? 6. How can we make the interference pattern wider? 7. What is a diffraction grating?

II. Describe Young's double-slit experiment using the diagram made in your copy-book.

#### III. Express certainty. Follow the model:

**Model:** The distance between these bands increases. →  
**St.:** The distance between these bands **is certain (sure) to increase.**

1. The wavelength of red light is longer than that of green. 2. The wavelength of the violet light is less than that of green. 3. In a diffraction grating the dark spaces in the

interference pattern are broader. 4. The slit separation is less in a diffraction grating. 5. More light gets through many slits than it does through two. 6. The bright spaces are brighter in a diffraction grating.

## (6) ENJOY YOURSELF

### She Was a Star Pupil

A high-school girl seated next to a famous astronomer at a dinner party struck up a conversation (завязала разговор), asking, "What do you do in life?"

He replied, "I study astronomy."

"Dear me," said the young miss. "I finished astronomy last year!"

## (7) HOME EXERCISES

I. Прочитайте и переведите на русский язык следующие интернациональные слова:

monoatomic, monoblock, monocylindrical, monoeñergetic, monolithic, monometallic, monomolecular, monophase, monoplane, monorailway, monotony, monotonous, monotype

II. Выпишите из текста 23А английские эквиваленты русских словосочетаний:

разумно предположить . . . ; равноотстоящие от . . . ; солнечный свет пропускается через фильтр; цель щелей — обеспечить . . . ; совершенно очевидно; легко наблюдать; косвенно это дает возможность объяснить; в обычных условиях

III. Переведите следующие предложения на русский язык, обращая внимание на перевод причастия II с наречиями:

so	} так, таким образом	so far	} до сих пор
thus		thus far	

1. The values thus found are of some interest. 2. The results so far received are not accurate enough. 3. The problem so explained was easily understood. 4. The articles thus far written on the subject are of no interest. 5. The work so done provided us with new data. 6. The method thus far used by us was effective enough. 7. The results thus achieved were of great help. 8. The measurements so far made are to be repeated.

IV. Напишите следующие предложения, выбрав подходящее по смыслу причастие I или причастие II, предлагаемые в скобках:

1. Newton assumed that light was made up of many small particles (*moving/moved*) at high speeds. 2. This figure represents light particles (*leaving/left*) a source in many directions. 3. A group of such particles (*travelling/travelled*) parallel paths is called a beam of light. 4. The experiments (*carrying/carried*) out at our laboratory are rather interesting. 5. The metal (*using/used*) in that experiment was titanium. 6. The results (*receiving/received*) changed with the material used. 7. The problem (*concerning/concerned*) must be considered in detail. 8. The period (*following/followed*) this invention was very productive.

V. Переведите на английский язык:

1. Рассматриваемый прибор очень важен для проведения данного опыта. 2. Ученые, придерживающиеся этого метода, считают его вполне удовлетворительным. 3. Данные, о которых идет речь, позволяют нам сделать несколько предположений. 4. Поведение данного вещества в этом эксперименте подтверждает нашу гипотезу (*hypothesis*). 5. Группа, выполняющая это задание (*task*), работает успешно. 6. Источники света, называемые точечными источниками, имеют малый размер по сравнению с площадью, которую они освещают.

## *Unit Twenty-Four*

### (1) GRAMMAR. НЕЗАВИСИМЫЙ ПРИЧАСТНЫЙ ОБОРОТ (THE ABSOLUTE PARTICIPLE CONSTRUCTION)

В роли обстоятельства времени, причины, условия или сопутствующих условий может выступать причастная конструкция, в которой причастию или причастной группе предшествует существительное (в общем падеже) или местоимение (в именительном падеже), выполняющее роль подлежащего по отношению к причастию и не являющееся подлежащим всего предложения. В состав независимого причастного оборота может входить причастие в любой его форме, и вся конструкция всегда отделяется запятой от остальной части предложения. На русский язык независимый причастный оборот переводится:

1) придаточным обстоятельственным предложением, вводным союзами *когда, так как, после того как, если* и др. Например:

**All preparations being made, they started the experiment.**

*Когда все приготовления были сделаны, они начали эксперимент.*

**The day being warm, we opened the windows.**

*Так как день был теплый, мы открыли окна.*

**Weather permitting, we shall be able to get there on Monday.**

*Если позволит погода, мы сможем добраться туда в понедельник.*

2) простым предложением, входящим в состав сложносочиненного предложения путем бессоюзного соединения или вводимого союзами *причем, и, а*. Например:

**The article deals with microwaves, particular attention being paid to radio location.**

*Статья посвящена микроволнам, причем особое внимание уделено радиолокации.*

Некоторые независимые причастные обороты, выражающие обстоятельства, начинаются предлогом *with*. На русский язык такие независимые причастные обороты переводятся тем же способом, что и независимые причастные обороты без предлога.

**The article deals with microwaves, with particular attention being paid to radio location.**

*Статья посвящена микроволнам, причем особое внимание уделено радиолокации.*

**With the experiments having been carried out, they started new investigations.**

*После того как были проведены опыты, они начали новые исследования.*

**Задание.** Читайте предложения, интонационно выделяя причастную конструкцию как единую смысловую группу. Назовите номера предложений, в которых имеется независимый причастный оборот. Переведите предложения на русский язык:

1. The laser beam being off, the energy for the next flash is building up. 2. An ordinary beam of light diverges, laser beam carrying its energy in a compact form. 3. When striking something opaque the laser beam is absorbed. 4. White light is a mixture of all possible wavelengths, all of them being out of step with each other. 5. All the waves in a laser beam



having the same wavelength, it has a very definite colour, the red colour being one of the most widely seen colours in them. 6. Travelling in a curved path around the earth the moon is continually changing the direction of its velocity. 7. Having explained the structure and mechanics of the Universe Newton laid down the law of Universal Gravitation. 8. In the metric system the unit of distance is the meter, other units of distance being obtained by multiplying the meter by ten or a multiple of ten.

## (2) WORD AND PHRASE STUDY

1. Приставка **poly-** имеет значение «много (поли-)». Например: **polychromatic** — *многоцветный, разноцветный, полихроматический*.

Задание 1. Постарайтесь догадаться о значении следующих слов: polycyclic, polycrystalline, polyatomic, polynominal, polyphase, polyvalence, polycathode

2. **series** ['siəri:z] ряд, последовательность, серия — существительное, имеющее одну и ту же форму для единственного и множественного числа.

Задание 2. Назовите глаголы, от которых образованы следующие существительные:

emission, absorption, arrangement, indication, definition, dispersion, production, assumption, appearance

## (3) READING 24A

Задание 1. Внимательно прочитайте текст. Найдите в нем определения сплошных, линейчатых и полосатых спектров, а также источников их излучения.

### Spectra

White light is polychromatic and as far as polychromatic light is concerned its component monochromatic colours are arranged on the screen in the order of their wavelengths, when it passes through a diffraction grating. The series of colours formed when polychromatic light is dispersed into its component monochromatic colours in the order of their wavelengths is called a spectrum. Suppose a certain kind of yellow light passing through a diffraction grating is spread out into monochromatic red and green light on a screen. We call the red

and green bands the spectrum of this yellow light. The plural of spectrum is spectra. Prisms and diffraction gratings are both used to produce spectra of polychromatic light.

Matter becomes incandescent when it is heated to a temperature at which it emits light. Light from an incandescent gas (e.g. sodium, helium, hydrogen, neon, etc.) at low or moderate pressure passing through a diffraction grating, its spectrum consists of several coloured lines on a black background. This is called a bright-line or emission spectrum. It is a series of bright coloured lines or bands on a dark background. Light from an incandescent solid or liquid or a gas under very high pressure produces a continuous spectrum. A continuous spectrum is a full range of colours from red on one end to violet on the other. Since light from such a source must contain all the colours from red to violet, it must be polychromatic white light.

The Sun is known to be made up of incandescent gases. Yet, the light we observe from the Sun is white. Therefore, we must assume that the incandescent gases must be under very high pressures.

When light passes through a vapour which is not heated to incandescence before it passes through a diffraction grating the resulting spectrum is called an absorption spectrum. It consists of dark lines in an otherwise continuous spectrum. The dark lines or bands in an absorption spectrum occur at the same positions (wavelengths) where bright lines appear when the vapour used is incandescent and is maintained at low or moderate pressure. Emission spectra are also called bright line spectra for an obvious reason. Absorption spectra are sometimes called dark line spectra for a reason which is just as obvious.

**Задание 2. Употребите подходящие по смыслу слова из предлагаемых в скобках вариантов:**

1. An incandescent gas under very high pressure emits white light. This means that it produces a (*bright line/continuous*) spectrum. 2. The spectrum produced by an incandescent solid or liquid is called a(n) (*emission/bright line/continuous/absorption*) spectrum. 3. When light passes through a vapour which is not heated to incandescence before it passes through a diffraction grating the resulting spectrum is called a(n) (*emission/bright line/continuous/absorption*) spectrum.

**Задание 3.** Заполните пропуски в предложениях подходящими по смыслу словами:

1. A continuous spectrum is produced by light from an incandescent . . . , . . . , or . . . at . . . pressures. 2. An absorption spectrum consists of . . . lines in an otherwise continuous spectrum and is produced by light passing through a . . . which is . . . . . to incandescence. 3. Emission spectra are also called . . . . . spectra as it is a series of . . . coloured . . . on a . . . background. They are produced by an incandescent . . . at . . . pressures. 4. The series of colours formed as a result of dispersion of polychromatic light is called a . . . . 5. When polychromatic light is being dispersed through a diffraction grating, its component monochromatic colours are arranged on the screen in the order of their . . . . 6. The interference pattern formed by the . . . . . is generally sharper and easier to examine.

#### (4) READING 24B

**Задание.** Прочитайте текст про себя за 2 минуты и найдите в нем ответы на два вопроса:

1. What do we make synthesized diamonds of? 2. Where are the synthesized diamonds used?

Слова для понимания текста: diamond — алмаз; substance — вещество; to scratch — царапать; pressure — давление

Diamond is one of the hardest substances known to people. Diamonds are much harder than steel or any other metal. The only thing that can scratch a diamond is another diamond—no other substance is hard enough.

For the first time in the world the Soviet scientists synthesized diamonds from gas. The technology is simple and cheap. The diamonds are synthesized at low atmospheric pressure and at a comparatively low temperature. The gas-made diamonds are used in the machining of such hard materials as germanium and silicon (кремний). The results show that the new material is of high technical and economic effectiveness and provides the highest standard of finish of the machined parts.

#### (5) CONVERSATION PRACTICE

I. Answer questions on Text 24A:

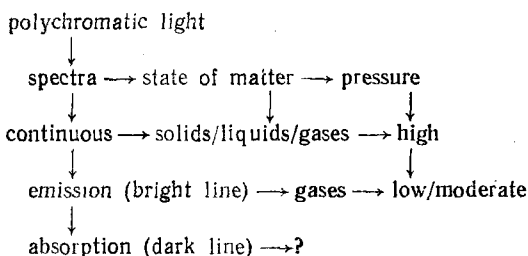
1. What is a spectrum? 2. What is the plural of the word "spectrum"? 3. What instruments are used to produce spectra of

polychromatic light? 4. On what condition does matter become incandescent? 5. What is the spectrum of an incandescent gas at low or moderate pressure? 6. What does emission spectrum look like? 7. What spectrum does an incandescent solid, or liquid, or a gas under very high pressure produce? 8. What does a continuous spectrum look like? 9. What is the sun made up of? 10. What is the source of the absorption spectrum?

II. Read the passage below and try to explain the phenomenon you have read about:

The spectrum of sunlight is commonly called the solar spectrum. The solar spectrum has many dark lines called Fraunhofer lines after their discoverer. Examined closely, the solar spectrum is just as much an absorption spectrum as it is a continuous one. The possible supposition is: . . .

III. Discuss the spectra problems using the points of the scheme given below:



## (6) ENJOY YOURSELF

A famous mathematician was asked about one of his former pupils.

"Oh, that one," he said, "He's become a writer of science fiction. He lacked the imagination for mathematics."

---

former *a* — бывший; fiction *n* — беллетристика, художественная литература; imagination *n* — воображение

## (7) HOME EXERCISES

I. Прочитайте следующие слова с приставкой *poly-* и переведите их на русский язык:

polyatomic, polybasic, polycrystal, polymer, polymeric, polymerization, polynuclear, polyphase

**II. Выпишите из текста английские эквиваленты следующих русских словосочетаний:**

весь диапазон цветов; поэтому мы должны предположить; при очень большом давлении; по столь же очевидной причине; в результате мы получаем спектр, который называется спектром поглощения; спектр состоит из нескольких цветных линий на черном фоне; спектр поглощения состоит из темных линий в спектре, который в ином случае был бы сплошным; цвета располагаются на экране в порядке длин их волн; должно быть, это полихроматический белый свет

**III. Переведите на русский язык, обращая внимание на перевод причастия в разных функциях:**

1. When dealing with gases it is common practice to consider them under a pressure of 1 atmosphere. 2. Having improved the device they could use it for several purposes. 3. If followed accurately the method will be of great help. 4. Kinematics being the study of motion, we study in it position, velocity and acceleration. 5. The speed remaining constant, the train will cover this distance in seven hours. 6. Mass being a physical concept, we define it in terms of certain laws of physics. 7. An object moving with constant velocity, the distance travelled is directly proportional to the time. 8. Electric devices find wide application in every home, a refrigerator being one of them.

**IV. Напишите вопросы к выделенным членам предложения:**

1. Having been warmed to 0° ice began to melt. 2. The data so far obtained were of no interest. 3. Having been used for a long time the device partly lost its efficiency. 4. The distance travelled during the next hour changed greatly. 5. While being used the device showed poor characteristics. 6. Knowing length and time we can define velocity. 7. If cooled water becomes ice. 8. Having been well tested the machine was put into operation.

**V. Переведите на английский язык:**

1. Завершая серию экспериментов, студенты получили интересные данные. 2. Завершив первую серию экспериментов, они начали обрабатывать полученные данные. 3. Измеряя температуру воды, обычно пользуются термометром (thermometer). 4. Обсудив полученные результаты, экспериментаторы поняли, что они недостаточно точны.

5. Работая с радиоактивным веществом, вы должны быть осторожны. 6. Снабдив лабораторию всем необходимым, исследовательская группа смогла успешно продолжать работу.

## *Unit Twenty-Five*

### (1) GRAMMAR. ПРИЧАСТИЕ В СОСТАВЕ СЛОЖНОГО ДОПОЛНЕНИЯ И В СОСТАВЕ ВВОДНОГО ЧЛЕНА ПРЕДЛОЖЕНИЯ

После глаголов определенного значения (обычно глаголов, выражающих физическое восприятие) типа: **to hear**, **to feel**, **to see**, а также глагола **to find** и других глаголов, имеющих значение «найти», «обнаружить» может употребляться сложное дополнение, состоящее из имени существительного (в общем падеже) или местоимения (в объектном падеже) и причастия. На русский язык такая конструкция переводится придаточным предложением. Например:

I see him running.

Я вижу, как он бежит.

I found him greatly changed.

Я обнаружил, что он очень изменился.

Сложное дополнение с причастием II после глагола **to have** и реже после глагола **to get** в значении «иметь» употребляется для выражения действия, которое совершается не лицом, выраженным подлежащим предложения, а кем-то другим. Например:

I had my books bound.

Я переплел свои книги  
(кто-то переплел их для меня).

В современном английском языке имеется еще один тип причастной группы, которая выполняет функцию вводного члена предложения и выражает дополнительное высказывание (общее уточнение, ограничение, обусловленность и т. п.) К таким причастиям относятся: **assuming** — допуская; **allowing for** — принимая во внимание (учитывая, внося поправку на . . .); **not counting** — не считая (не принимая во внимание); **speaking of (for)** — говоря о . . .; **judging by (from)** — судя по . . .; **beginning with** — начиная с . . . и др.

Задание. Найдите в предложении причастие (или причастную конструкцию). Определите его (ее) синтаксическую функцию и переведите предложения на русский язык:

1. I heard him explaining the phenomenon in terms of multiple reflections. 2. We found the first series of experiments completed. 3. Speaking on this subject, mention should be made of high radiation intensity. 4. Allowing for this changes, we may predict time behaviour. 5. The methods of measurements developed lately differ greatly from the old ones. 6. The successful results of the experiments received at this laboratory are very important for the new technological process being developed. 7. While making the experiment we made use of all the data available. 8. Unless checked the results can't be applied in the research. 9. The experiments of many other scientists following Rutherford's research proved his predictions.

## (2) WORD AND PHRASE STUDY

1. Обратите внимание на образование множественного числа некоторых слов греческого и латинского происхождения: *phenomenon* — *phenomena*; *medium* — *media*; *spectrum* — *spectra*; *index* — *indices*.

2. Суффикс *-ive* образует прилагательные от глаголов. Например:

$V + -ive = A$	$create + -ive = creative$ — созидательный
----------------	--

Задание. Пользуясь списком глаголов в левой колонке, дайте английские эквиваленты русских прилагательных в правой колонке:

refract, exhaust, indicate,	привлекательный, адап-
attract, adapt, construct	тивный, исчерпывающий,
	показательный, конструк-
	тивный, преломляющий

3. *other than* — *отличный от* . . .

## (3) READING 25A

Задание 1. Прочитайте текст и найдите в нем предложения, из которых следует, что понятие скорости света становится довольно сложным для среды, обладающей дисперсией.

## Dispersion and Colour. Refraction of Light

Here we will examine another phenomenon incidentally associated with refraction, namely, colour. It has been observed quite early that white light is often broken up into various colours when it passes through certain refracting media, e.g. prisms, droplets of water, etc. The philosopher-mathematician—Descartes explained the formation of rainbows in terms of multiple refractions and internal reflection of sunlight in rain droplets. It was probably Isaac Newton who carried out the first exhaustive series of experiments to show that white light could be analyzed into a band of monochromatic colours (called a spectrum) by a flint glass prism, and that these colours could be recombined to produce white light. Incidentally, Newton's Optics in which he describes these experiments is still, several hundred years later, a classic in the literature of experimental physics.

Experiments have shown that all colours of light travel at the same speed in a vacuum (or air, for most practical purposes). However, in other transparent media like water, glass, etc., different colours travel at different speeds. This means that rays of red and green light undergo different amounts of refraction when they enter a medium like glass obliquely.

Experiments have shown as well that red light travels fastest and violet light slowest in transparent media other than air or a vacuum. Whenever they strike the surface of another medium, the refracted rays will not be parallel. The violet ray will be refracted more because it travels slower.

Looking at a source of white light through water or a thick piece of glass you can sometimes see a band of colours resembling a rainbow. White light is in fact made up of many different colours, which, in air, travel at the same speed. This beam of white light striking a glass surface, its component colours are refracted at different angles, different colours travelling at different speeds in glass. This effect is produced more strikingly when there are two refracting surfaces, say, white light is refracted at two crystal surfaces. We say that this prism disperses white light into its component colours, the band of colours in the glass prism being an example of the dispersion of white light.

The refractive index of a medium is inversely proportional to the speed of light in that medium. That is, the greater the speed of light in a refracting medium (is), the less is the



amount of refraction. The smaller is the speed of light in a transparent medium, the greater is its absolute index of refraction. Experiments should show, that the extent to which white light is dispersed in a medium varies directly with the refractive index of the dispersing medium. The greater (is) the refractive index of a medium, the greater is the dispersing effect of a prism.

From the fact that different colours are refracted at different angles in the same transparent medium, it follows that the refractive indices of different colours for the same medium are different. Strictly speaking, then we can give the refractive index only for monochromatic light.

**Задание 2. Употребите подходящие по смыслу слова из предлагаемых в скобках вариантов:**

1. All colours of light travel at (*the same speed/different speeds*) in a vacuum. 2. All colours of light travel at (*the same speed/different speeds*) in transparent media, other than air. 3. Red light travels (*fastest/slowest*) in transparent media. 4. Red light travels (*fastest/slowest/at the same speed like all the other colours*) in air. 5. A ray of red light and a ray of violet light travel (*parallel/nonparallel*) to each other in water when entering from air. 6. The parallel red and violet rays of light refracted in a glass prism (*will/will not*) be parallel to each other. 7. The greater the speed of light in a refracting medium, the (*greater/less*) is the amount of refraction. 8. The greater is the refractive index of a medium, the (*greater/less*) is the dispersing effect of a prism. 9. Light dispersed into two or more different colours by a prism is called (*monochromatic/polychromatic*). 10. Dispersion results from the fact that different colours are refracted at (*the same angle/different angles*) in the same transparent medium. 11. The refractive indices of different colours for the same medium are (*the same/different*).

**Задание 3. Заполните пропуски в предложениях подходящими по смыслу словами:**

1. All colours of light travel at the . . . speed in a vacuum. 2. Rays of red and green light undergo . . . amounts of refraction when entering a medium like glass. 3. The greater the speed of light in a refracting medium, the . . . is the amount of refraction a ray undergoes. 4. A beam of white light striking a glass surface, its component colours are refracted at (the) . . . angle(s) because different colours travel at . . .

... in glass. 5. The prism disperses white light into its component ... 6. The refractive index of a medium is ... proportional to the speed of light in that medium. 7. Light dispersed into two or more different colours by a prism is called ... 8. If the green light emerging from the prism cannot be ... further, we say it is ... light. 9. The smaller the speed of light entering a transparent medium, the ... is its absolute index of refraction.

#### (4) READING 25B

**Задание.** Прочитайте текст за 2 минуты. Найдите в тексте новую гипотезу, высказанную относительно планеты Юпитер; передайте содержание по-русски.

**Слова для понимания текста:** *scarcely* — вряд ли, с трудом; *rock* — горная порода; *to puzzle* — озадачивать, удивлять; *to contract* — сжиматься

#### Jupiter: The Planetless Planet

What is Jupiter? The scientists analysing the results of the flights past Jupiter have found that, for all its size, the giant planet may scarcely be called a planet. Given Jupiter's size and mass the scientists suggest that its interior is largely liquid hydrogen with a ball of rocky material at the center.

It's a new idea and it is not 100 per cent accepted. But among people who work in the area there is 80 to 90 per cent agreement that Jupiter is a liquid planet.

Jupiter radiates 2.5 times as much heat as it receives from the Sun, something that has puzzled astronomers. The scientists believe that the source is heat left over from Jupiter's birth. They say Jupiter is contracting very slowly and when a liquid body contracts, it loses heat. This means Jupiter was far hotter at its formation.

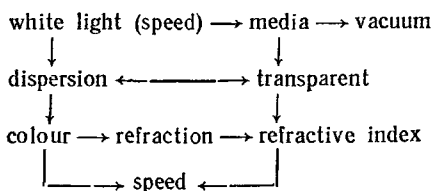
#### (5) CONVERSATION PRACTICE

##### I. Answer questions on Text 25A:

1. What problem does the text deal with? 2. What phenomenon is associated with refraction? 3. Under what condition is white light broken up into various colours? 4. Who was the first to explain the formation of rainbows? 5. How did Descartes explain the formation of rainbows? 6. Who was the first to carry out exhaustive series of experiments on the dispersion of white light into monochromatic colours?

7. Do all colours travel at the same or different speeds in a vacuum? 8. Do they travel at the same speed in glass? 9. Which colour travels fastest? 10. What does the refractive index of a medium depend upon?

II. Discuss the problems of refraction and dispersion using the scheme given below:



## (6) ENJOY YOURSELF

In one of his lectures a well-known mathematician said: "Every person has a certain horizon. When that horizon narrows down and becomes infinitely small, it turns into a point."

That is when a person says: "This is my point of view."

---

**horizon** *n* [hə'raɪzn] — кругозор; **infinitely** *adv* — бесконечно; **turn** *v* — превращаться; **point of view** — точка зрения

## (7) HOME EXERCISES

I. Выпишите из текста 25A английские эквиваленты следующих русских словосочетаний:

между прочим; претерпевает различное . . . ; хрустальная призма; кроме воздуха или . . . ; случайно связанный с . . . ; исчерпывающая серия экспериментов; белый свет распадается на . . . ; а именно; из . . . следует; исходя из . . . ; строго говоря; являясь результатом того факта . . .

II. Переведите на русский язык:

1. Looking at a source of white light through water or glass we can sometimes see a band of colours resembling a rainbow. 2. Light from the source producing a full range of colours, we conclude that the heated gas must be under very high pressure. 3. Strictly speaking there are more differences than similarities between the two phenomena, the

effect they produce being quite different. 4. The light we observe from the Sun being white, we must assume it to be made up of incandescent gases under very high pressures.

III. Упростите следующие предложения, используя сложное дополнение вместо дополнительных придаточных предложений:

Model 1: We found that all definitions had been made. →  
We found all definitions made.

Model 2: I saw that he was checking the device. → I saw  
him checking the device.

1. We found that they were finishing the measurements.  
2. We found that the measurements had been completed.  
3. They found that the frequency had changed. 4. You can feel that the temperature is rising. 5. You can see that the value has changed. 6. We could hear that the machine was operating properly.

IV. Переведите на английский язык, употребляя причастия и причастные конструкции:

1. Единицы измерения массы, имеющие дело с молекулярными и атомными частицами, очень малы. 2. Основываясь также на понятии, как время, на законах физики, мы не можем быть уверены, что эти законы абсолютно точны. 3. Являясь физическим понятием, масса должна определяться, исходя из (на основании) определенных законов физики. 4. Мы наблюдали, как они завершали эксперимент. 5. Мы видели, что они пользуются теми же приборами. 6. Мы обнаружили, что все измерения сделаны. 7. Я слышал, как они обсуждают эту проблему. 8. Вы должны посмотреть, как они упаковывают приборы.

## *Unit Twenty-Six*

### (1) GRAMMAR. ГЕРУНДИЙ (GERUND)

Герундий — это **неличная** форма глагола, совмещающая в себе свойства глагола и существительного и дающая отвлеченное понятие о действии, не указывая на лицо, число и наклонение.

Свойства глагола	Свойства существительного
<p>1) имеет видо-временные формы</p> <p>2) имеет формы залога</p> <p>3) может иметь прямое дополнение</p> <p>4) определяется наречиями</p>	<p>1) в предложении выполняет те же функции, что и существительное, т. е. может занимать позиции (0), (1), (3), (4), а также входить в состав составного сказуемого (2)</p> <p>2) в функции обстоятельства и определения имеет предлог</p> <p>3) может иметь определением местоимение или существительное в притяжательном падеже</p>

### Видо-временные формы герундия

Действительный залог		Страдательный залог
Indefinite	asking (V-ing)	being asked (being + V <sub>3</sub> )
Perfect	having asked (having + V <sub>3</sub> )	having been asked (having been + V <sub>3</sub> )

### Способы перевода герундия на русский язык

Примеры	Перевод
<p>On being told the news he sent a telegram.</p> <p>He waited for them without thinking of time.</p>	<p>Узнав новости, ... (0)</p> <p>..., не думая о ... (4)</p>
<p>Learning rules without examples is useless.</p>	<p>Заучивать ... (1)</p>

Примеры	Перевод
He began <b>learning</b> Russian.	... <i>учить</i> ... (2)
We always enjoy <b>travelling</b> . I never thought of <b>being offered</b> this job.	... <i>путешествовать/путешествие</i> (3) ... <i>о том, что мне предложат</i> ...

Герундий в синтаксической функции обстоятельства всегда употребляется с предлогами **in, on, upon, after, with (out), by, etc.** Следует обратить внимание на смысловое значение предлогов **in** и **on**. Предлог **in** означает процесс в его развернутости, а предлог **on** — завершенность процесса. Например: **In making** such experiments ... (= **making** — *проводя*). **On making** the experiment ... (= **having made** — *проведя*).

Задание 1. Определите, какую позицию в следующих предложениях занимает *-ing*-форма — нулевую (причастие) или первую (герундий). Дайте соответствующий русский перевод:

Model: (1) **Swimming** is my favourite sport → *Плавание*

(0) **Swimming** in cold water he caught cold. →  
*Плавая* ...

1. Testing will begin in a few minutes. 2. Testing these devices we sometimes find defects in them. 3. Reading stories about adventures and travellings excited the boy's imagination. 4. Reading stories about adventures he remembered his green years. 5. Increasing the pressure we increase the force of friction (трение). 6. Ice melting begins at 0°C. 7. Heating makes the molecules move faster.

Задание 2. Замените формы причастия в функции обстоятельства соответствующими формами герундия с предлогами *in* или *on*:

Model: (While) **making** → *In making*

**Having made** → *On making*

**Having been made** → *On being made*

1. While melting the ice keeps the same temperature. 2. Having been heated to a sufficient temperature any body becomes a source of light. 3. Using a transformer one can increase the voltage of the a.c. 4. Leaving the metal surface

the electrons can produce considerable currents. 5. Having made a lot of experiments Faraday discovered the electromagnetic induction.

## (2) WORD AND PHRASE STUDY

1. Слова **drop, charge, escape, reverse** имеют одно и то же написание как для глагола, так и для существительного.

2. **the former . . . the latter** — первый . . . последний (из выше упомянутых).

3. **a-c voltage** = alternating current voltage; **d-c voltage** = direct current voltage.

## (3) READING 26A

Задание 1. Внимательно прочитайте текст и найдите в нем объяснение процесса термоэлектронной эмиссии и описание устройства простейшей электронной лампы.

### Thermionic Valves or Tubes. Diode

The branch of electronics dealing with the emission of electrons from substances under the action of heat, particularly the study and design of thermionic valves or tubes is called thermionics.

A good high vacuum is practically a perfect nonconductor, since in it no carriers of electricity are present. If two metal plates or electrodes are enclosed in a vacuum by a glass tube, we have an open circuit and no current will flow. However, one of the electrodes being heated to a high temperature, the thermal velocity of some of the conduction electrons in the metal becomes high enough for these electrons to escape. In moving through a vacuum these electrons form an electric current.

The effect of thermionic emission is due to the fact that some of the free electrons in metal under certain conditions can obtain such a velocity, that their kinetic energy is great enough to overcome the molecular forces of attraction and so they may leave the metal surface. The mean velocity of the electrons in the metallic conductor is not high enough to cause more than a very small percentage of the electrons to be ejected.

Nevertheless, the electrons leaving the metal surface can produce considerable currents. Electrons can as well escape from cold metal surfaces in case they are acted upon by so

high an electric field (approximately  $10^7$  volt/cm or more), that the molecular forces of attraction are overcome by it.

A thermionic valve is a system of electrodes arranged in an evacuated glass or metal tube. For special purposes a gas at low pressure may be introduced into the valve. The heated electrode is called the cathode (or sometimes the filament) and the cold electrode—the plate. The cathode is an electrode which is held at a negative potential with respect to the plate. It emits electrons. The cathode of a tube may be in the form of a wire which is heated or it may be a metal tube coated with certain metallic oxides, which is heated by a separate heater. In the former case the cathode is known as “filament”, in the latter, it is called an “indirectly heated cathode.” In both cases the heating of a substance causes it to emit electrons. The device is called a diode and if we apply an alternating current to a vacuum tube it behaves as a one-way resistance, electrons flowing from cathode to plate but not from plate to cathode.

With polarity reversed, there can be no current of electrons at all. Suppose an a-c voltage is applied to terminal A. During each positive cycle current will flow through the diode and the voltage drop across the resistance R will be the value of the diode current times R. Note, that although the voltage of A is negative 50% of the time, the voltage of B is never negative. The voltage of B can be used to charge up a capacitor. This application of the diode called a diode rectifier can convert an a-c voltage into d-c voltage, all a-c operated radio and TV sets having diode rectifiers to convert the alternating current into direct current.

**Задание 2. Употребите подходящие по смыслу слова из предлагаемых в скобках вариантов:**

1. In a perfect nonconductor (*some/no*) carriers of electricity are present. 2. Current (*will/will not*) flow in an open circuit. 3. The mean velocity of the electrons in the metallic conductor (*is/is not*) high enough to cause great percentage of the electrons to be ejected. 4. The electrons leaving the metal surface (*can/can't*) produce considerable currents. 5. Electrons can escape from (hot/cold/hot and cold) metal surfaces. 6. Electrons can escape from cold metal surfaces in case they are acted upon by high (*temperature/electric field*). 7. If the kinetic energy of an electron is not great enough to overcome the molecular forces of attraction it (*can/can't*) escape from the metal surface. 8. The heated electrode in



a diode is called the (*filament/plate*). 9. A diode behaves as a one-way resistance if we apply a(n) (*alternating/direct*) current to it. 10. The (*filament/plate*) collects electrons which (*the plate/the filament*) emits.

**Задание 3.** Заполните пропуски в предложениях подходящими по смыслу словами:

1. Thermionics is a branch of electronics dealing with the . . . of . . . . 2. In a nonconductor no . . . of electricity are present. 3. No current will flow in an open . . . . 4. The electrons escaping the metal surface form an electric . . . . 5. When metal is heated the kinetic energy of some of the electrons becomes high enough to . . . the molecular forces of . . . . 6. If we apply an alternating current to a diode it behaves as a one-way . . . . 7. A diode . . . can convert an a-c voltage into d-c voltage.

#### (4) READING 26B

**Задание 1.** Прочитайте текст и скажите, чем отличается данный электровакуумный прибор от диода и для каких целей он применяется:

When the third electrode, called **the grid**, is placed in the circuit between the cathode and the plate, the tube is known as a triode. \*The purpose of the grid is **to control** the flow of plate current.

When the tube is used **as an amplifier**, a negative d-c voltage is usually applied to the grid. Under this condition the grid **does not draw appreciable current**. The number of electrons attracted to the plate depends on the **combined effect** of the grid and plate polarities. \*Hence, when the voltage on the grid is varied in accordance with the signal, the plate current varies with the signal. \*A small voltage applied to the grid can control a comparatively large amount of plate current and the signal is amplified by the tube. The grid, plate, and cathode of a triode form an electrostatic system, each electrode acting as one plate of a small **condenser**. \*The capacitances are those existing between grid and plate, plate and cathode, and grid and cathode. These capacitances are known as **interelectrode capacitances**.

**Задание 2.** Объясните, как вы понимаете слова, выделенные в тексте.

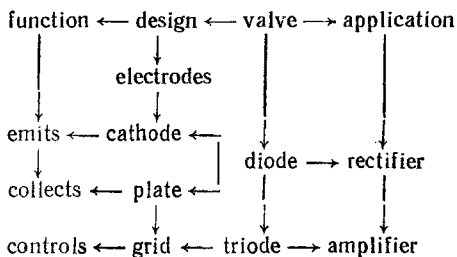
**Задание 3.** Переведите на русский язык предложения, помеченные звездочкой.

## (5) CONVERSATION PRACTICE

### I. Answer questions on Text 26A:

1. What does thermionics deal with? 2. Why is a good high vacuum a perfect nonconductor? 3. What do we call an open circuit? 4. What must we do to start thermionic emission? 5. What is the effect of thermionic emission due to? 6. On what condition can electrons escape from cold surfaces? 7. What is diode? 8. How many electrodes are there in a diode? 9. What is the heated electrode called? 10. What is the cold electrode called? 11. In what case does a diode behave as a one-way resistance? 12. What way do electrons flow in a diode? 13. Where and what purpose are diode rectifiers used for? 14. What is a triode? 15. How many electrodes are there in a triode? 16. What are these electrodes called? 17. Where is the grid placed? 18. What purpose is it placed for? 19. What does the grid control? 20. What are triodes used for?

11. Describe the arrangement of a diode and a triode using the scheme given below:



## (6) ENJOY YOURSELF

*First student:* The dean (декан) says he is going to stop smoking (to smoke — курить) in the college.

*Second student:* Huh! Next thing he'll be asking us to stop it, too.

Mark Twain once said, "It's the easiest thing in the world to give up smoking. I've done it a hundred times."

## (7) HOME EXERCISES

I. Назовите производные и глагольные формы от следующих глаголов:

**to charge** — заряд, заряженный, заряжающий, заряжая, зарядив, незаряженный;

**to reflect** — отражение, отражающий, отражая, отразив, неотраженный;

**to rectify** — выпрямитель, выпрямляющий, выпрямляя, выпрямив, невыпрямленный;

**to suppose** — предположение, предполагающий, предполагая, предположив

**II. Выпишите из текста английские эквиваленты следующих русских словосочетаний:**

под воздействием; носители электричества; тепловая скорость; электроны проводимости; в определенных условиях; молекулярные силы притяжения; ток диода; недостаточно высока, чтобы вызвать; в случае, если на него воздействует . . . ; если применить (подать) переменный ток; одностороннее сопротивление; диодный выпрямитель

**III. Переведите на русский язык следующие предложения:**

1. Changing the resistance of a circuit is one of the methods of controlling the flow of current in the circuit. 2. The rheostat is used in controlling current strength by changing its resistance. 3. We can both increase the resistance of the rheostat by making the diameter of the wire smaller and decrease its resistance by making the diameter of the wire larger. 4. A machine for converting mechanical energy into electric energy by making use of the interaction between a conductor and a magnetic field is called a generator or dynamo. 5. Applying high voltages seems to be justified in this case.

**IV. Переведите на английский язык:**

1. Способ изготовления таких электронных ламп прост. Применение их в промышленном оборудовании широко обсуждается. Используя эти лампы, мы можем значительно повысить производительность труда (labour productivity). 2. В этих условиях преобразование переменного тока в постоянный совершенно необходимо. 3. Испускание электронов начинается тогда, когда кинетическая энергия свободных электронов становится достаточно большой, чтобы преодолеть молекулярные силы притяжения. 4. Вы можете изменить величину тока, регулируя напряжение в цепи.

## Unit Twenty-Seven

### (1) GRAMMAR. СЛОЖНЫЕ ЧЛЕНЫ ПРЕДЛОЖЕНИЯ С ГЕРУНДИЕМ

В сочетании с существительным (в притяжательном или общем падеже) или притяжательным местоимением герундий образует сложные члены предложения, которые могут выполнять в предложении различные функции, и на русский язык обычно переводятся придаточными предложениями, вводимыми словами: *то, что; в том, что; тем, что; о том, что*:

**The man's coming** so early surprised us.

*То, что этот человек пришел так рано, удивило нас.*

**We objected to your going** there.

*Мы возражали против того, чтобы вы пошли туда.*

**They insist on this experiment being made** once more.

*Они настаивают на том, чтобы этот эксперимент был сделан еще раз.*

**Задание.** Найдите в следующих предложениях сложную конструкцию с герундием и переведите предложения на русский язык:

1. I wonder at your overcoming these difficulties so easily. 2. He proposed our immediately telling the whole story. 3. The rule against visitors entering the lab at the time of the experiment is strict. 4. They started working without another word being spoken on either side. 5. His having carried out the measurements so easily doesn't surprise us. 6. Their having failed to distinguish between these phenomena seems strange enough.

### (2) WORD AND PHRASE STUDY

Отглагольные существительные в английском языке образуются при помощи суффикса **-ing**:

$V + \text{-ing} = N$
-----------------------

**to melt + -ing = melting**  
(таяние, плавление)

**Задание 1.** Образуйте существительные от следующих глаголов и переведите их на русский язык. Проверьте правильность перевода по ключу:

(1) to coat; (2) to couple; (3) to convert; (4) to derive; (5) to obtain; (6) to reduce; (7) to wind; (8) to separate; (9) to treat

**Задание 2. Напишите слова с противоположным значением:**

output, increase, desirable, dependent, positive, attract, less, external, effective

### (3) READING 27A

**Задание 1. Внимательно прочитайте текст и найдите в нем описание процесса усовершенствования электронных ламп; назовите причины, вызвавшие необходимость их усовершенствования.**

## Tetrode and Pentode

The effect of undesired coupling between the input and output circuit in a triode can be avoided by placing an additional electrode called the screen into the tube and thus reducing the capacitance between the grid and the plate. With the addition of the screen the tube has four electrodes and is accordingly called a tetrode. The screen is placed between the grid and the plate, and acts as an electrostatic shield between them, thus reducing the grid-to-plate capacitance. The effectiveness of this shielding action is increased by connecting a by-pass (блокировочный) condenser between the screen and cathode.

By means of the screen and this by-pass condenser, the grid-to-plate capacitance of a tetrode is made very small. In practice, the grid-to-plate capacitance is reduced from an average value of 8 micro-microfarad ( $\mu\mu\text{f}$ ) for a triode to 0.01  $\mu\mu\text{f}$  or less for a screen grid tube.

The screen has another desirable effect in that it makes plate current practically independent of plate voltage over a certain range. The screen is operated at a positive voltage and therefore, attracts electrons from the cathode.

Pentode is a tube with five electrodes: anode, cathode and three grid-type electrodes. The grid nearest the cathode is the control grid, the next is the screen grid and that nearest the anode is a suppressor grid. The suppressor grid repels secondary electrons and prevents bombardment of the screen grid by them.

Emission caused by bombardment of an electrode by electrons from the cathode is called secondary emission because the effect is secondary to the original cathode emission.

In normal use the control grid of a pentode is negatively biased, the screen grid has a potential somewhat less than that of the anode, while the suppressor is held at cathode potential.

The basic principle of the pentode and tetrode tubes is that (for a constant control-grid voltage) the cathode current is almost independent of the anode voltage. This is because the screen shields the cathode from the anode and the anode voltage has no effect upon the potential gradient at the cathode. Thus, if the anode current increases, the screen-grid current decreases, and vice versa.

The amplification factor of a pentode is of the order of thousands, but the stage gain can never be as great as this because the anode load can't have an impedance which approximates to the value of the internal resistance of the tube.

**Задание 2.** Используйте подходящие по смыслу слова и словосочетания из предлагаемых в скобках вариантов:

1. A triode has a (*screen/grid/suppressor*) placed between the cathode and the plate. 2. The purpose of the screen in a tetrode is (*to control the flow of electrons/to repel secondary electrons/to reduce the capacitance between the grid and the plate*). 3. A four electrode tube is called a (*diode/triode/pentode/tetrode*). 4. The third grid in a pentode is called a (*screen/suppressor*) grid. 5. The undesired effect of coupling between the input and output circuits can be avoided by placing a (*suppressor/screen*) grid into the tube. 6. The screen is operated at a (*positive/negative*) voltage. 7. The function of a suppressor grid is (*to control the flow of plate current/to reduce the grid-to-plate capacitance/to prevent bombardment of the screen by secondary emission*).

#### (4) READING 27B

**Задание.** Прочитайте текст за 2 минуты и ответьте на вопрос:

What is a measure of light intensity in a photo-electric cell?

Слова для понимания текста: *cell* — элемент, фотоэлемент; *transfer* — перенос, передача; *detection* — обнаружение; *to coat* — покрывать

### Photocells

A photo-electric cell is a device used for detection and measurement of light. Its principle is simple and is based upon photo-electric effect, arising as a result of transfer of energy from light incident on a substance to electrons.

Photoemissive cells consist of two electrodes, a plane cathode coated with a suitable photoemissive material and an anode which is maintained at a positive potential with respect to the cathode and which attracts the photoelectrons emitted by the latter.

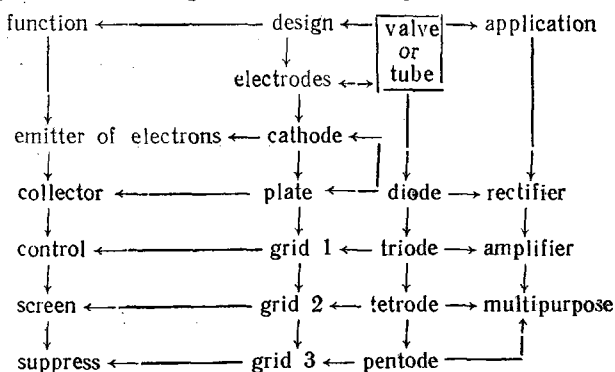
The cathode is most often made of caesium silver compound, which is not only light sensitive but is particularly sensitive to the red end of the light spectrum, which makes photocells of particular value in many industrial processes where artificial lighting is so important.

The electrodes are arranged in a tube either evacuated, or, for greater sensitivity containing a gas (usually argon) at low pressure.

The electric current passing through the cell is a measure of the light intensity incident on the cathode.

### (5) CONVERSATION PRACTICE

Speak on valve design using the scheme given below:



### (6) ENJOY YOURSELF

*Professor:* Oxygen (кислород) is essential to all animal existence. There could be no life without it. It was discovered only a century ago.

*Student:* What did they do before it was discovered?

### (7) HOME EXERCISES

I. Прочитайте следующие слова и назовите слова с противоположным значением:

misapply, disconnection, degenerate, unnatural, immovable, purposeful, discover, lawless, carefulness, discharge,

disappearance, uncertain, incomplete, indifferent, direct, unchangeable, inconvenient, undesired, instability

II. Выпишите из текста английские эквиваленты следующих словосочетаний:

эффективность экранирования; средняя величина; делает практически независимой от . . .; антидинаatronная сетка; управляющая сетка; вторичная эмиссия; отрицательно смещенный; и наоборот; усиления каскада; коэффициент усиления; анодная нагрузка; нежелательная связь; внутреннее сопротивление лампы

III. В следующих предложениях найдите герундиальные или причастные конструкции, установите их функцию и переведите предложения на русский язык:

1. I never doubted his working in this field of science. 2. Scientists' constantly exploring the unknown, their looking for new knowledge and the answers to unsolved questions cannot be overestimated (переоценить). 3. One must not forget that there are plenty of problems remaining still unsolved. 4. Using their minds and working together men can solve almost any problem. 5. Scientists' working together and their sharing ideas with one another is of great advantage for science. 6. Even when working alone a scientist must know what others have done before him. 7. Being pioneers scientists go ahead preparing the way for those following them.

IV. Напишите вопросы к выделенным членам предложения:

1. The electrons **leaving the metal surface** can produce considerable current. 2. The **escaping** electrons flow **from the cathode to the plate** 3. The number of electrons attracted to the plate depends **on the combined effect of the grid and plate polarities**. 4. A triode contains **three** electrodes. 5. **Electron tubes** are widely in use nowadays. 6. One must use special instruments **while carrying out this experiment**.

V. Переведите на английский язык:

1. Назначение сетки — управлять протеканием анодного тока. 2. Сигнал усиливается лампой. 3. Такие лампы используются как усилители. 4. К сетке прикладывается отрицательное постоянное напряжение. 5. Эти электроды действуют как пластины конденсатора. 6. Связь между входной и выходной емкостью вызывает нестабильность системы.



## Unit Twenty-Eight

### (1) GRAMMAR. СПЕЦИАЛЬНЫЕ СЛУЧАИ УПОТРЕБЛЕНИЯ ГЕРУНДИЯ

Герундий употребляется

1) после таких фраз, как:

It's no use . . . } бесполезно  
It's useless . . . }

It's no good ... не стоит ...  
I can't help ... не могу не ...

Например:

It's no good leaving the  
work incompletd.

Не стоит оставлять рабо-  
ту незавершенной.

I can't help being surprised  
at their success.

Не могу не удивляться их  
успеху.

2) после прилагательных: like, busy, worth (worth-while).

Например:

One more fact is worth men-  
tioning.

Стоит упомянуть еще один  
факт.

He is busy checking the  
equipment for the experi-  
ment.

Он занят проверкой обору-  
дования для проведения  
эксперимента.

3) после глаголов, требующих после себя предлога:  
rely on, depend on, insist on, think of, thank for, devote to,  
object to, succed in, prevent from. Например:

Our success depends on  
being supplied with the  
necessary equipment.

Успех наш зависит от обес-  
печения необходимым  
оборудованием.

They succeeded in obtain-  
ing all the instruments  
they needed.

Им удалось получить все  
необходимые приборы.

4) после прилагательных и причастий прошедшего вре-  
мени, требующих после себя предлога: fond of, tired of,  
proud of, used to [ju:st]. Например:

He is used to working un-  
der such conditions.

Он привык работать в та-  
ких условиях.

5) после таких существительных, как: idea, method,  
way, pleasure, требующих после себя предлога of. Напри-  
мер:

I like your idea of **spending**  
the evening at home.

Мне нравится твоя идея  
провести вечер дома.

6) после предлогов: **in, on (upon), after, before, by, without.** Например:

On **pressing** the button you  
will get the information  
desired.

Нажав кнопку, вы полу-  
чите необходимую ин-  
формацию.

**Задание 1. Переведите на русский язык:**

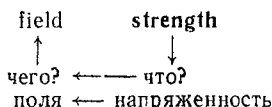
1. I **can't help mentioning** one more interesting fact. 2. The **idea of using** this technique is new and somewhat unexpected. 3. **It's worth mentioning** in this connection that this technique found no support two years ago. 4. **It's useless devoting** too much time to this problem **without specifying** all the details of the procedure. **It's no good wasting** much time in debates. 5. We **insist on treating** another important element in this technique. 6. The **way of avoiding** these difficulties is unknown at present. 7. This procedure will give us the **possibility of determining** both the state estimation and the time delay.

**Задание 2. Переведите на английский язык:**

1. Стоит рассмотреть этот вопрос. 2. Бесполезно думать об этом. 3. Не стоит тратить на это время. 4. Мы не можем не предпринять еще одной попытки. 5. Им удалось объяснить это явление. 6. Подумайте о том, как объяснить результаты ваших опытов. 7. Вы будете возражать против участия в этой работе? 8. Я устал от выполнения такой работы. 9. Идея использовать высокое напряжение не нова.

## (2) WORD AND PHRASE STUDY

1. Английские термины часто представляют собой цепочку, состоящую из двух или нескольких существительных, в которой основным словом является последнее существительное, а существительные, стоящие перед ним, определяют его.



**Задание 1. Переведите на русский язык следующие английские термины. Проверьте правильность перевода по ключу:**

- (1) **gradient** — field g.; potential g.; moisture g.; density g.  
 (2) **value**—field strength v.; output v.; nonzero v.  
 (3) **bias**—grid b.; signal b.; output b.; emitter-base b.  
 (4) **factor**—gain f.; current gain f.; power f.; absorption f.

**Задание 2.** Переведите на английский язык русские термины. Проверьте правильность перевода по ключу:

- (1) **эмиссия** — катодная э.; электронная э.; вторичная э.;  
 (2) **нагрузка** — рабочая н.; анодная н.; катодная н.;  
 (3) **смещение** — положительное с.; отрицательное с.; с. на выходе;  
 (4) **сопротивление** — входное с.; выходное с.; внутреннее с.

**2.** Обратите внимание на способы образования производных в следующих гнездах слов:

**conclude** *v* заключать — **conclusion** *n* — **conclusive** *a*;  
**discover** *v* — открывать — **discovery** *n*

**3. 600 B.C. (before Christ) [kraist]** — 600 лет до нашей эры.

### (3) READING 28A

**Задание 1.** Внимательно прочитайте текст. Перечислите основные этапы развития учения о магнетизме.

#### Theory of Magnetism

The branch of physics concerned with magnets and magnetic fields is called magnetism. The phenomena of electrostatics and magnetism were known to ancient men as early as 600 B.C. The ancient Greeks knew that certain rocks (породы) of iron attract small pieces of iron. This was also known to the early Chinese who used this knowledge to make a magnetic compass. The ancient Greek philosophers thought magnetic and electric forces to be of common origin.

However, by the sixteenth century philosophers learned to base their laws of nature more on experiment than contemplation (миросозерцание) and there being no experimental evidence of any relationship between magnetic and electrostatic phenomena, they concluded that magnetic and electric effects were independent. No one was able to find any force between a charged object and a magnet. The discovery that there is indeed a force between a moving charge and a magnet

was made accidentally in 1820 by Hans Christian Oersted, a Danish physics teacher. At the end of a lecture on the subject he attempted to demonstrate the lack of relationship between electricity and magnetism by turning a current next to a magnetized needle. To his great astonishment he saw the needle making a great oscillation.

Thus the ancient doctrine that magnetism and electricity are related was suddenly given new life to.

Magnetic field is quite analogous to electric field. It is a mathematical definition for the purpose of simplifying calculations and making things easier to understand.

To explain why magnets behave the way they do purely in terms of forces between currents is our purpose. How does a bar magnet behave when placed in a uniform magnetic field? There will be a moment of force tending to produce rotating of the bar to line it up with the field.

The early physicists explained this effect by assuming that the bar magnet has two poles — one of strength  $+m$  at the North pole and one of strength  $-m$  at the South pole and that the force on a magnetic pole is  $F=m \cdot B$ .

The force between two magnets was explained by saying that one magnetic pole  $m_1$  produces a magnetic field of strength  $B=m_1/r^2$ , which acts on a second magnetic pole  $m_2$ . Then  $F=m_1m_2/r^2$ . The reader will note that this formalism of magnetostatics is mathematically exactly the same as that of electrostatics.

**Задание 2. Употребите подходящие по смыслу слова из предлагаемых в скобках вариантов:**

1. The phenomena of magnetism (*became known not so long ago/were known as far as twenty five centuries ago*). 2. The ancient Greek philosophers thought there (*is/ls no*) relationship between magnetic and electric forces. 3. By the sixteenth century there (*was/was no*) experimental evidence of the relationship between magnetic and electrostatic phenomena. 4. The lack of experimental evidence of any relationship between magnetic and electrostatic phenomena made the scientists come to the conclusion that these effects were (*dependent/independent*). 5. In his experiment Hans Christian Oersted tried to demonstrate the (*relationship/lack of relationship*) between electricity and magnetism. 6. When a bar magnet is placed in a uniform magnetic field there will be a moment of force producing (*oscillation/rotation*) of the bar magnet.

#### (4) READING 28B

**Задание.** Прочитайте текст за 2 минуты и ответьте на следующий вопрос:

Какие изменения претерпевает магнетизм земли и известны ли ученым причины этих изменений?

### The Earth's Magnetism

The Earth possesses a magnetic field, the strength of which varies with time and locality. The field is similar to that which would be produced by a powerful magnet situated at the centre of the Earth and pointing approximately north and south. A magnetized needle suspended to swing freely in all planes will set itself pointing to the Earth's magnetic North and South poles, at an angle to the horizontal.

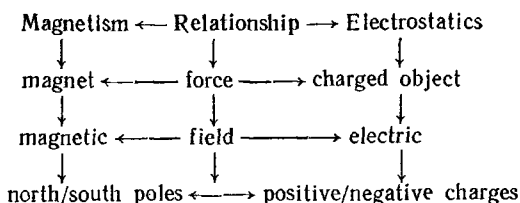
The vertical plane through the axis of such a needle is termed the magnetic meridian defined as the vertical plane which contains the direction of the Earth's magnetic field. The cause of the Earth's magnetism is not definitely known. The variations of the Earth's magnetic field with time are of two types, the "secular" (вековой, секулярный) and the "diurnal" [dai'ə:nl] (суточный). The secular variations are slow changes in the same sense but at different rates, as a result of which the Earth's magnetic field has decreased by some 5% over the last hundred years. The cause of these variations is unknown. The diurnal variations are much smaller and more rapid (быстрый) variations which have been shown to be associated with changes in the ionosphere related to sunspot activity.

#### (5) CONVERSATION PRACTICE

##### I. Answer questions on Text 28A:

1. What is magnetism as a branch of science concerned with?
2. What did ancient Greeks know about magnetism?
3. How did the Chinese use their knowledge of magnetism?
4. Why did the philosophers of the following centuries come to the conclusion that there is no relationship between magnetism and electricity?
5. How was the relationship between magnetism and electricity discovered?
6. What did Hans Christian Oersted try to demonstrate in his experiment?

II. Say about Hans Christian Oersted's experiment, using the scheme given below:



## (6) ENJOY YOURSELF

A chemistry professor chalked a formula  $\text{HNO}_3$  on the blackboard. Then he looked around and pointed a finger at the sleepest member of the class. "Identify that formula," he demanded. "Eh, ah," started the unhappy student. "I've got it right on the tip of my tongue, sir." "In that case," said the professor softly, "you'd better spit it out, my boy. It's nitric acid."

---

to point a finger at — указывать пальцем на; I've got it on the tip of my tongue [тлг] — Это вертится у меня на кончике языка; you'd better spit it out — вам лучше бы выплюнуть; softly *adv* — мягко; nitric acid — азотная кислота

## (7) HOME EXERCISES

I. Переведите на русский язык следующие термины:

density—noise d.; surface d.; atmosphere d.; anode current d.

drop—anode d.; voltage d.; temperature d.; contact voltage d.

gas—electron g.; ionized g.; ideal g.; inactive g.

II. Выпишите из текста английские эквиваленты следующих словосочетаний:

отсутствие взаимосвязи; определенные породы железа; однородное магнитное поле; напряженность поля; иметь общее происхождение; отсутствие экспериментальных данных; заряженное тело; рядом с. . . ; совершенно аналогично; выстроить вдоль поля; точно такой же

III. Заполните пропуски глаголами *make* или *let*:

**Model:** I wanted to leave for Kiev. My chief . . . me stay in Moscow. → I wanted to leave for Kiev. My chief **made** me stay in Moscow.

1. We wanted to buy that new device. The head of the laboratory . . . us buy it. 2. Mary didn't want to write a paper on the subject. Her scientific adviser . . . her write it. 3. We wanted to take some exams in December. Our dean didn't . . . us take them beforehand. 4. The students wanted to check the results again. Their teacher . . . them do that. 5. The engineer didn't want to stop the experiment. The head of the group . . . him stop it. 6. I wanted to take part in the conference. My professor . . . me do it.

#### IV. Переведите на русский язык:

1. This element was isolated and found to possess the properties required. 2. Try to give some comparison to make things easier to understand. 3. The Sun is our only important natural source of light, the Earth receiving only a little light from the stars. 4. The force needed to start an object moving increases with the weight and the heavier the object, the more slowly it starts when a constant force acts on it. 5. It's no use saving time if you don't know how to use it. 6. In mixing these liquids one should be very careful. 7. There is one more point worth mentioning. 8. We can't help recognizing the importance of their discovery. 9. One can increase the current by reducing the resistance of the circuit. 10. There are different ways of charging a body with electricity. 11. On being heated to a sufficient temperature any body becomes a source of light. 12. This device should be put into operation without stopping the experiment. 13. In recent years man has succeeded in controlling chemical reactions.

#### V. Переведите на английский язык:

1. Им удалось получить совершенно аналогичные результаты. 2. Стоит упомянуть еще один интересный факт. 3. Отсутствие экспериментальных данных помешало им сделать правильные выводы (to come to a conclusion). 4. Идея использовать высокое напряжение не нова, а предложенный метод очень оригинален. 5. Бесполезно пытаться помешать им провести этот эксперимент. 6. Спасибо вам за ваше участие в этой работе.

#### VI. Заполните пропуски, логически завершив следующие предложения:

1. They succeeded in . . . 2. His coming prevented us from . . . 3. They objected to . . . 4. It's worth-while . . . 5. You must thank them for . . . 6. His idea of . . . 7. It's useless . . . 8. I can't help . . .

## TEST SIX

Завершив работу над материалом уроков 24—28, выполните следующие упражнения. Проверьте правильность их выполнения по ключу.

I. Назовите номера предложений, в которых *ing*-форма является причастием и переводится на русский язык причастием с суффиксами *-ущ*, *-ющ*, *-ащ*, *-ящ*:

1. You shouldn't forget that there are plenty of problems **remaining** still unsolved. 2. I don't doubt his **working** in the field of electronics. 3. The researchers **working** in this field deal with the problem of conductivity. 4. **Working** there he is certain to deal with such materials. 5. Their **having failed** in developing this problem is quite understandable. 6. An **increasing** number of production processes are being controlled by machines rather than men. 7. **Increasing** the number of machine-controlled production processes we shouldn't forget of the difficulties involved. 8. You have certainly heard of their **having increased** the number of machine-controlled processes.

II. Назовите номера предложений в упр. I, которые следует перевести на русский язык целым придаточным предложением, вводимым союзом *то, что...*

III. Назовите предложение, дающее адекватный перевод русского предложения:

1. Проводимые исследования интересны.

a) Making researches is interesting. б) The researches made are interesting. в) The researches to be made are interesting. г) The researches being made are interesting.

2. Проведенная институтом работа сыграла ведущую роль в развитии этой проблемы.

а) The work done by the Institute played a leading role in the development of the problem. б) The work being done by the Institute played a leading role in the development of the problem. в) Having done the work the Institute played a leading role in the development of the problem.

3. Работа, которую предстоит выполнить, сыграет ведущую роль. а) The work being done will play a leading role. б) The work to be done will play a leading role. в) The work done will play a leading role.



## Unit Twenty-Nine

### (1) GRAMMAR. СОСЛАГАТЕЛЬНОЕ НАКЛОНЕНИЕ (THE SUBJUNCTIVE MOOD)

В английском языке, как и в русском, различаются три наклонения: изъявительное (The Indicative Mood), повелительное (The Imperative Mood) и сослагательное (The Subjunctive Mood).

В отличие от изъявительного наклонения, которое показывает, что говорящий рассматривает действие как реальный факт, относящийся к настоящему, прошедшему или будущему, сослагательное наклонение показывает событие как маловероятное, предполагаемое, желаемое или совсем нереальное. Например:

Изъявительное наклонение	Сослагательное наклонение
1. I'm glad Pete <b>has agreed</b> . Я рад, что Петр <i>согласился</i> .	1. I wish Mary <b>would agree</b> too. Хотелось бы мне, чтобы Мария тоже <i>согласилась</i> .
2. <b>Is</b> he still not here? Он все еще не здесь?	2. It's high time he <b>were</b> here. Давно <i>было бы</i> ему пора <i>быть</i> здесь.
3. I <b>shall take</b> a taxi. Я <i>возьму</i> такси.	3. If I <b>were</b> you, I <b>would take</b> a taxi. Если <i>бы</i> я <i>был</i> на вашем месте, я <i>бы</i> взял такси.

Как видно из примеров, в русском языке форма сослагательного наклонения глагола совпадает с формой прошедшего времени глагола в сочетании с частицей *бы*, и остается одинаковой для настоящего, прошедшего и будущего времени. В английском же языке имеется несколько форм сослагательного наклонения. Для выражения действия **предполагаемого, маловероятного или желаемого**, относящегося к настоящему или будущему времени имеются формы синтетические (простые) и аналитические (сложные):

Синтетическая форма	Аналитическая форма
1) be, have, know 2) were, had, knew	should } + V would }

Синтетические формы сослагательного наклонения для всех лиц совпадают с формой инфинитива без частицы **to** или с формой Past Indefinite.

Для выражения действия нереального, относящегося к прошлому (утраченная возможность в прошлом) имеются тоже две формы для всех лиц:

Синтетическая форма	Аналитическая форма
had been (known, etc.)	should } + have been (known, etc.) would }

Синтетическая форма сослагательного наклонения совпадает в данном случае с формой Past Perfect.

В современном английском языке сослагательное наклонение употребляется:

1. В простых предложениях со значением предположения, возможности осуществления действия или наличии определенных условий (последние могут и не упоминаться, а вытекать из контекста). В предложениях такого типа употребляются аналитические формы сослагательного наклонения с глаголами **should** и **would** и с модальными глаголами. Например:

Without the force of gravitation there **would be** no pressure in liquids.

The new results **could cause** great changes in the course of the experiment.

Без силы гравитации *не было бы* давления в жидкостях.

Новые результаты *могли бы вызвать* большие изменения в ходе эксперимента.

2. В придаточных предложениях после безличных оборотов типа

It is	necessary	that ...	Необходимо, чтобы ...
	important		Важно (существенно), чтобы ...
	essential		Желательно, чтобы ...
	desirable		Сомнительно, чтобы ...
	doubtful		Вероятно, что ...
	probable		Маловероятно, что ...
	improbable		Невозможно, чтобы ...
	impossible		Предполагается, что ...
	suggested		Требуется, чтобы ...
	proposed		Необходимо, чтобы ...
	required		
	demanded		
	ordered		

употребляются синтетические формы (**be, take** etc.) и аналитические формы (**should be (take, etc.), should have been (taken, etc.)**). Например:

<b>It is improbable that he should have completed the research.</b>	Маловероятно, чтобы он уже завершил исследование.
<b>It was ordered that the machine (should) be tested once more.</b>	Было приказано, чтобы машину испытали еще раз.

3. В дополнительных придаточных предложениях после глаголов, выражающих приказание, предложение, желание (*to suggest, to propose, to desire, to require, to order, to demand, to insist* (настаивать), etc.), употребляются синтетические формы (**be, take, etc.**) и аналитическая форма с **should (should be/take, etc.)**.

<b>He demanded that the work should be started at once.</b>	Он потребовал, чтобы работа была начата немедленно.
<b>We suggested that the device be tested under somewhat different conditions.</b>	Мы предложили, чтобы прибор был проверен в нескольких условиях.

4. В дополнительных придаточных предложениях, зависящих от глагола **wish**, и в вежливых просьбах употребляются синтетические формы (**were, took, had been, had taken**) и аналитические формы только с глаголом **would (would be/take, etc.), would have been/taken, etc.**

I wish it were true.

*Хотелось бы мне, чтоб это  
оказалось правдой.*

I wish you had checked the  
results better.

*Мне хотелось бы, чтобы вы  
лучше проверили резуль-  
таты.*

I wish you wouldn't use  
this device.

*Мне хотелось бы, чтоб вы  
не пользовались этим при-  
бором.*

**Задание 1.** Назовите номера предложений, в которых глаголы *should*, *would* и *were* выступают в форме сослагательного наклонения:

1. I wish he would stop that noise. 2. Don't trouble. He said he would stop it very soon. 3. It would be very nice, if it were only possible. 4. I wish he were in Moscow. 5. They were to come to Moscow a month ago. 6. They suggested that I should take part in this research. 7. You really should take part in it, there is no reason to reject this suggestion. 8. I knew that I should come here again. 9. Did they mean that they were interested in the subject? 10. It was suggested that the work should be done without any delay. 11. You should do this work immediately. 12. I wish I would be able to do it on time.

**Задание 2.** Переведите предложения задания 1 на русский язык.

## (2) WORD AND PHRASE STUDY

1. При переводе на русский язык английских терминов последнее существительное в цепочке слов является основным, а слова, стоящие перед ним, его определителями. Например:

circular      current      loop → петля кругового тока  
↑                    ↑                    ↓  
какого? ← чего? ← что? —————> какого?/чего?

**Задание 1.** Переведите на русский язык цепочки слов. Проверьте правильность перевода по ключу:

- (1) **boundary**—domain b.; airspace b.; laser beam b.; moving b.; sharp b.
- (2) **loop**—closed l.; current l.; circulating current 1.
- (3) **sign**—division s.; equality s.; opposite s.; negative s.

**Задание 2.** Переведите на английский язык следующие русские термины. Проверьте правильность перевода по ключу:

- (1) ток — анодный т.; усиленный т.; переменный т.

- (2) поле — векторное п.; п. вероятностей; волновое п.; п. давлений; п. излучения  
 (3) заряд — единичный з.; нулевой з.; точечный з.; з. ядра  
 2. Ось — axis *n* ['æksɪs]; *pl.* axes ['æksɪ:z]

### (3) READING 29A

Задание 1. Внимательно прочитайте текст и найдите в нем объяснение поведения стержневого магнита и описание свойств ферромагнитных веществ.

## Theory of Magnetism

The similarity of the formalism of magnetostatics and electrostatics assumes that a plot of the lines of force produced by a bar magnet should then look the same as the lines of an electric field, that are produced by two charges of opposite sign. Examined carefully, the field pattern of a solenoid may be clearly seen to be exactly the same as that of a bar magnet. This suggests a bar magnet to be perhaps really a solenoid with some “mysterious” internal current that never dies out.

In 1836 Ampere proposed as an explanation of the behaviour of a bar magnet that it is really a solenoid with a “built in” current running around the outside surface. Ampere considered it impossible to doubt that there are really such currents about the axis of a magnet.

But where does this perpetual (постоянный) current come from? Ampere explained this by picturing the molecules of a ferromagnetic material as having associated with them a circular current in a closed electric circuit of zero resistance. He also proposed an external magnetic field to be able to align these molecules parallel to each other so that their elemental magnetic fields become additive. Fig. 7 shows how such elementary currents add up to produce a net surface current. Note, that the currents inside cancel out.

This explanation of magnetism which preceded the discovery of the electron by over sixty years brilliantly anticipated (предвосхитило) our modern knowledge of atomic structure and theory of magnetism. Ampere's electric circuits of zero resistance exactly correspond to the motion of Bohr's atomic electrons. In the Bohr's model, each electron



Fig. 7. Circular Ampere current in a magnetized bar (viewed from the pole).

presents a perpetual current similar to the single loop of a solenoid. In most atoms these electron orbits or current loops are so oriented that they cancel each other out. However, ferromagnetic substances such as iron, cobalt and nickel have the two following properties:

1) their atoms have electron orbits and electron spin (rotating charge) which are not cancelled out; 2) the forces between neighbouring atoms are such that the atoms prefer to line up so that their current loops are all pointing in the same direction. We now know any sample of ferromagnetic material at room temperature to be made up of macroscopic domains (of the order of a few thousandths of an inch) where the atoms are completely lined up. In an unmagnetized sample the domains are randomly oriented. In the process of magnetization the domains line up by movement of the domain boundaries, the domains favourably oriented with respect to the fields growing at the expense of the others.

**Задание 2. Употребите подходящие по смыслу слова из предлагаемых в скобках вариантов:**

1. The field pattern of a bar magnet is (*approximately/exactly*) the same as that of a solenoid. 2. The electric field produced by two charges of (*opposite/the same*) sign looks the same as the plot of the lines of force produced by a bar magnet. 3. In a magnetized sample the domains are (*oriented in the same direction/randomly oriented*). 4 In the process of magnetization the domains line up by movement of the domain (*bands/boundaries*). 5. The domains favourably oriented with respect to the fields increase their (*sign/size*) at the expense of the others. 6. Ampere proposed a bar magnet to be really a solenoid with some (*internal/external*) current that never dies out.

#### (4) READING 29B

**Задание. Прочитайте текст за 2 минуты и найдите в нем ответы на вопросы:**

1. Under what condition do the ferromagnetic substances lose their ferromagnetic properties?
2. What gives rise to the magnetism observed?

#### Ferromagnetism

The metals iron, cobalt, nickel and certain alloys are much more magnetic than any other known substance: these metals are said to be ferromagnetic. Ferromagnetism is due

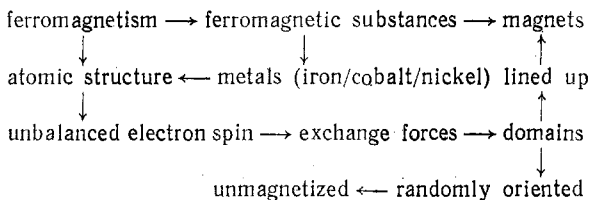
to unbalanced electron spin in the inner electron orbits of these elements which gives the atom a resultant magnetic moment. The ionic spacing in ferromagnetic crystals is such that very large forces, called exchange forces, cause the alignment of all the individual magnetic moments of large groups of atoms to give highly magnetic domains. In an unmagnetized piece of iron, these domains are oriented at random, their magnetic axes pointing in all directions. The application of an external field serves to line up the domain axes giving rise to the observed magnetism. Ferromagnetic substances lose their ferromagnetic properties at a certain critical temperature, the Curie temperature for that substance.

## (5) CONVERSATION PRACTICE

### I. Answer questions on Text 29A:

1. What did Ampere propose as an explanation of the behaviour of a bar magnet? 2. Why did he make such a proposition? 3. How did Ampere explain his proposition? 4. What did Ampere associate the molecule of a ferromagnetic material with? 5. Why was Ampere's explanation of magnetism very significant? 6. What model do Ampere's electric circuits of zero resistance correspond to? 7. What are the two properties of ferromagnetic substances? 8. How are the domains oriented in a(n) (unmagnetized/magnetized) sample? 9. How do the domains line up in the process of magnetization?

II. Discuss magnetic properties of ferromagnetic substances using the scheme below:



## (6) ENJOY YOURSELF

### Compromise

Two farmers went fishing one day and when they got home, they compared their catch. One said he had caught a two hundred pound fish. Then he asked, "What did you catch?"

"Well," was the answer, "all I got was an old lantern with

an inscription 'Captain Kidd, 1756', and you know, there was a lighted candle inside it."

The first farmer thought and then said: "Look here. Let's compromise. I'll take a hundred pounds off my fish if you put out the candle in that lantern."

---

catch (caught, caught) *v* — ловить; *n* — улов; lantern *n* — фонарь

## (7) HOME EXERCISES

I. Переведите на русский язык следующие прилагательные с суффиксами *-ful* и *-less*:

useful, useless, careful, careless, changeful, changeless, purposeful, purposeless, beautiful, meaningless, groundless, boundless, weightless, aimless, endless, motionless, bottomless

II. Выпишите из текста 29А английские эквиваленты следующих русских словосочетаний:

рисунок поля; замкнутая электрическая цепь с нулевым сопротивлением; благоприятно ориентированные относительно поля; предложил в качестве объяснения; элементарные магнитные поля становятся аддитивными, круговой ток; движением границ доменов

III. Переведите на русский язык следующие английские термины:

carrier—magnetic c.; charge c.; current c.; data c.

function—frequency f.; wave f.; continuous f.; slowly varying f..

IV. Прочитайте следующие предложения и переведите их на русский язык, обращая внимание на употребление глаголов в форме сослагательного наклонения:

1. Our scientific adviser insists that we should take part in the work of the conference to be held in Leningrad in June. 2. He insists that our group should present a paper dealing with one of the problems of cosmic research. 3. He proposes that the paper should consist of three parts, the last one discussing the experimental results obtained. 4. It is suggested that the experiments be repeated in part under essentially changed conditions. 5. We must work hard as it is demanded that we should present the paper on time. 6. I wish I would take part in the conference. But it is rather doubtful that I should go there for I shall be taking my exams at the time.



V. Завершите следующие предложения, используя одну из форм сослагательного наклонения:

1. It's quite necessary . . .
2. It's rather doubtful . . .
3. It is essential . . .
4. I wish . . .
5. The dean ordered . . .
6. He insists that . . .

## Unit Thirty

### (1) GRAMMAR. УСЛОВНЫЕ ПРЕДЛОЖЕНИЯ (CONDITIONAL SENTENCES)

Условные предложения в английском языке вводятся союзами **if** — *если*, **unless** — *если не*, а также словами:

**provided (that)**  
**providing (that)**  
**supposing (that)**  
**on condition (that)**  
**in case ...**

*при условии, что; если*

В зависимости от характера выраженного условия (реально это условие или нет) условные предложения делятся на **реальные** и **нереальные**.

**Реальные условные предложения** выражают выполнимое условие, относящееся к настоящему, прошедшему или будущему времени. В реальных условных предложениях, английских и русских, глагол употребляется в форме изъявительного наклонения. Например:

**If he is busy, I don't come up to him.**

*Если он бывает занят, я не подхожу к нему.*

**If he was busy, I didn't come up to him.**

*Если он бывал занят, я не подходил к нему.*

**If he is busy, I shall not come up to him.**

*Если он будет занят, я не подойду к нему.*

**Нереальные условные предложения** выражают либо маловероятное, либо совсем нереальное, невыполнимое действие. В английских и русских нереальных условных предложениях глагол употребляется в сослагательном наклонении. Однако, в отличие от русских нереальных условных предложений, где и маловероятное и невыполнимое условие всегда выражается одной и той же формой глагола, совпадающей по форме с прошедшим временем в сочетании с частицей *бы*, английские нереальные

условные предложения по способу выражения делятся на два типа:

I тип — предложения, выражающие маловероятное или нереальное условие, относящееся к настоящему или будущему времени.

Условное предложение	Главное предложение
форма сослагательного наклонения, совпадающая с формой Past Indefinite	<b>would + V</b>

If he **came** here now, we **would ask** him for help.

Если *бы* он *пришел* сейчас сюда, мы *попросили бы* его *помочь* нам.

If he **had** free time next Sunday, he **would help** us.

Если *бы* у него *было* свободное время в следующее воскресенье, он *помог бы* нам.

II тип — предложения, выражающие нереальные (невыполнимые) условия, относящиеся к прошедшему времени (упущенная возможность в прошлом).

Условное предложение	Главное предложение
форма сослагательного наклонения, совпадающая с формой Past Perfect	<b>would + have V<sub>3</sub></b>

If he **had come** here yesterday, we **would have asked** him for help. (But he didn't come here yesterday.)

Если *бы* он *пришел* сюда вчера, мы *бы попросили* его *помочь* нам. (Но он не приходил сюда вчера.)

If he **had had** free time last Sunday, he **would have helped** us. (But he had no free time.)

Если *бы* у него *было* свободное время в прошлое воскресенье, он *помог бы* нам. (Но у него не было свободного времени.)

**Задание 1.** Назовите номера предложений, выражающих нереальное условие (тип I). Переведите их на русский язык:

1. If it is not rainy tomorrow, he will come. 2. If I saw him, I would speak to him. 3. I would play chess, if you asked me. 4. If you are right, then I am wrong. 5. If he asked me, I would speak to him. 6. If he asked for money, would you give him any? 7. The secretary will help you, if you have any difficulties. 8. If it were not so cold, I would go for a swim.

**Задание 2.** Назовите номера предложений, выражающих нереальное условие (тип II — упущенная возможность в прошлом). Переведите все предложения на русский язык:

1. I would have spoken, if I had been sure of the answer. 2. If the molecules of water had been divided into smaller parts, it wouldn't have been water any longer, but some other substance. 3. If we added one or more electrons to the outer part of the atom, the atom would have a negative electrical charge. 4. If the air were entirely composed of nitrogen, burning would be impossible. 5. If he had known about our difficulties he would have helped us. 6. If he had understood the situation, he would have acted differently. 7. If he had been present, this wouldn't have occurred. 8. If you had come between two and three yesterday, you would have found me at home.

## (2) WORD AND PHRASE STUDY

Обратите внимание на образование множественного числа следующих слов латинского происхождения: **nucleus** ['nju:klɪəs] — *pl.* **nuclei** ['nju:klɪaɪ]; **radius** ['reɪdjəs] — *pl.* **radii** ['reɪdɪaɪ]

**Задание.** Прочитайте и переведите на русский язык следующие английские термины:

1) light nucleus; 2) heavy nuclei; 3) daughter nucleus; 4) mirror nuclei; 5) mother nuclei; 6) even-charge nuclei; 7) zero radius; 8) atomic radii

## (3) READING 30A

**Задание 1.** Внимательно прочитайте текст. Установите, какие две модели строения атома рассматриваются в тексте и в чем их различие.

### The Structure of the Atom

The word "atom" comes from the Greek and means "that which has no parts". The atom we know is far from being solid and indivisible, but we continue to use the word to designate the smallest particle which takes part in chemical interactions.

Every atom is electrically neutral and consists at least in part of equal amounts of positive and negative charge. The negative charge carriers in an atom are those particles we call electrons.

The mass of the smallest atom (hydrogen) is  $1.66 \times 10^{-27}$  kg; the mass of an electron is  $9.1 \times 10^{-31}$  kg. The ratio of the mass of a hydrogen atom to the mass of an electron is

$$\frac{1.66 \times 10^{-27} \text{ kg}}{9.1 \times 10^{-31} \text{ kg}} \approx 1840,$$

that is, any atom has a mass which is much greater than the mass of an electron.

As we have already stated, an atom is electrically neutral because it contains equal numbers of positive and negative charge carriers. The total mass of the hydrogen atom, in particular, is known to consist entirely of the mass of its positive charge carriers and the mass of its negative charge carriers.

It is known that an atom of oxygen contains exactly 8 electrons. The total positive charge which resides in an oxygen atom is 8.

Chemical experiments show that the average radius of any atom is about  $10^{-10}$  metre. Recall that 1 Ångström unit (Å) =  $10^{-10}$  metre. The radius of an atom is about 1 Å.

As it has already been stated above, the negative charge associated with an atom is accounted for by the number of electrons which reside in the atom. The mass of an electron is very small compared to the mass of an even the smallest atom and the question arises as to how the rest of the mass of the atom is distributed. If it were distributed uniformly throughout the atom, then it should occupy a spherical volume whose radius is about  $10^{-10}$  metre.

It is possible that the positive charge which balances all the negative charges of the electrons in an atom is uniformly distributed, it is also possible that it is concentrated into a smaller volume inside the atom in a compact arrangement of mass and charge called a nucleus. In the latter case we would expect the radius of the nucleus to be less than 1 Å.

We start, therefore, with two different hypotheses about the structure of the atom.

The notion that the positive charge in an atom is spread out uniformly in a sphere with a radius of  $10^{-10}$  metre was advanced by J. J. Thomson around 1900. The Thomson model is often called the plum-pudding model of the atom because the electrons which neutralize the positive charge are supposed

to be scattered around in the positive charge mass like raisins (изюминки) in a plum-pudding. In the Thomson model of the atom the positive charge carriers are uniformly distributed throughout the atom as a whole and all the space in the atom is occupied by electrons and positive charge carriers.

The counter hypothesis that the positive charge carriers in an atom are not uniformly distributed throughout the atom but are concentrated in a small region at its centre was advanced by Ernest Rutherford, and is called the nuclear atom theory. The region in which the positive charge is concentrated in this theory is called the nucleus of the atom. The radius of the nucleus of an atom is less than the radius of the atom.

**Задание 2. Употребите подходящие по смыслу слова из предлагаемых в скобках вариантов:**

1. Every atom is electrically (*positive/negative/neutral*).
2. Every atom consists of (*equal/unequal*) amounts of positive and negative charge.
3. Any atom has a mass which is (*much less than/much greater than/equal to*) the mass of an electron.
4. An atom contains (*equal/unequal*) numbers of positive and negative charge carriers.

**Задание 3. Завершите предложения, заполнив пропуски соответствующими словами:**

1. The smallest particle which takes part in chemical interactions is called . . . .
2. In the thermionic effect, a metal heated to a high temperature is observed to eject electrically charged particles called . . . .
3. An atom is electrically . . . .
4. An atom of . . . contains 8 electrons.

#### (4) READING 30B

**Задание 1. Посмотрите на схематическое устройство счетчика Гейгера-Мюллера (Fig. 8). Прочитайте текст быстро, но внимательно и найдите в нем ответ на вопрос:**

What works a counter in this instrument?

#### Geiger Counter

Geiger-Müller counter named after Hans Geiger (1882—1947) is an instrument for the detection of ionizing radiations (chiefly alpha, beta, and gamma rays), capable of registering individual particles or photons. It consists normally of a fine wire anode surrounded by a coaxial cylindrical metal cathode, mounted in a glass envelope containing gas at a low

pressure. A large potential difference, usually about 1000 volts, is maintained between the anode and the cathode. \* The ions produced in the counter by an incoming ionizing particle are accelerated by the applied potential difference

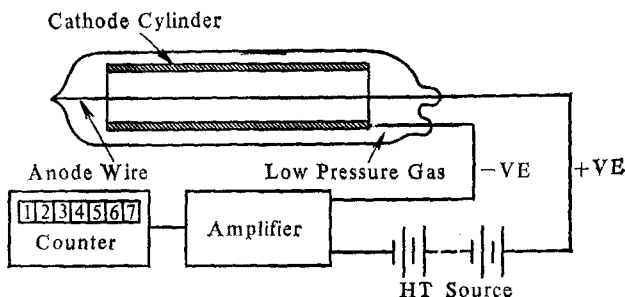


Fig 8

towards their appropriate electrodes causing a momentary drop in the potential between the latter. \* This voltage pulse is then passed on to various electronic circuits by means of which it can, if desired, be made to work a counter.

**Задание 2.** Переведите на русский язык предложения, помеченные звездочкой.

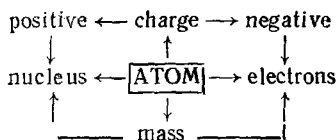
**Задание 3.** Расскажите по-английски об устройстве счетчика Гейгера-Мюллера.

## (5) CONVERSATION PRACTICE

### I. Answer questions on Text 30A:

1. What language does the word "atom" come from?
2. What does it mean?
3. Is atom really solid and indivisible?
4. Is atom a charged particle?
5. What do we call the negatively charged particles in an atom?
6. What is the mass of a hydrogen atom?
7. What is the ratio of the mass of a hydrogen atom to the mass of an electron?
8. What is the ratio of the mass of a positive charge carrier to the mass of an electron?
9. How many electrons are there in an oxygen atom?
10. What two hypotheses were put forward to explain the distribution of positive and negative charge carriers in an atom?

### II. Discuss the structure of an atom using the scheme given below:



### III. Think what you would say in the following situations:

**Model:** You went to see a very dull film. You wasted your time. → *St.:* I wouldn't have wasted time, if I hadn't gone to see the film.

1. You went out and got terribly wet. Five minutes later the rain stopped. 2. You studied hard. You managed to pass the exam well. 3. You didn't visit your friend for a long time. You didn't know he was ill. 4. You didn't pay due attention to your physics experiments. You failed to obtain necessary data.

### IV. Complete or begin the sentences on your own:

1. If you promised to keep the secret, . . . . 2. If you were a minute late, . . . . 3. If it didn't rain tomorrow, . . . . 4. . . ., nobody would believe him. 5. . . ., I would be happy.

## (6) ENJOY YOURSELF

"Your husband is too fond of strong coffee," said the doctor. "You must not let him have it. He gets too excited."

"But, doctor, you should see how excited he gets when I give him weak coffee."

---

to get excited [ɪk'saɪtɪd] — волноваться

## (7) HOME EXERCISES

I. Выпишите из текста 30А английские эквиваленты следующих русских словосочетаний:

по крайней мере, частично; далеко не . . . ; цельный; в частности; возникает вопрос относительно того, как . . . ; в последнем случае . . . ; объясняется числом электронов; распределены равномерно; следовало бы ожидать . . .

### II. Переведите на русский язык:

1. You will not succeed with your experiments, unless you work hard. 2. Supposing no data are given to us, what shall we do? 3. We could wait for you, provided you came on time. 4. If I were you, I wouldn't promise to come on time. 5. If I made a promise, I would certainly keep it. 6. If I hadn't made a promise to come, I wouldn't have kept you waiting for me.

### III. Напишите полные ответы на следующие вопросы:

1. What would you do, if you had a day off today? 2. If you had more time, would you study more? 3. If you could do it over again, what profession would you choose? 4. Where would you go, if you could go anywhere?

#### IV. Переведите на английский язык:

1. Если вы не проследите (take care), прибор перегреется. 2. Если не принять во внимание все эти факторы, нельзя будет с большой точностью предсказать (predict) поведение системы. 3. Если не учесть коэффициент усиления (gain), это уравнение не даст желаемой точности. 4. Если не испытать прибор в рабочих условиях, он может отказать (fail) во время эксперимента.

### Unit Thirty-One

#### (1) GRAMMAR. ИНВЕРСИЯ В УСЛОВНЫХ ПРЕДЛОЖЕНИЯХ

В нереальных условных предложениях возможна инверсия (обратный порядок слов), если в состав сказуемого входят глаголы — **were, had, could, should**. В таких предложениях союз **if** опускается, а глаголы **were, had, could, should** ставятся перед подлежащим. Например:

**Had I known** about it before,  
I would have spoken to him.

**Could I know** about it,  
I would certainly come.

**Should you see** him, ask him to call me up.

**If I had known** about it before, I would have spoken to him.

**If I could know** about it, I would certainly come.

**If you should see** him, ask him to call me up.

Нереальное условие («если бы не») в простом предложении может быть выражено в английском языке сочетаниями: **but for** — для любого времени; **if it were not for (were it not for)** — для настоящего и будущего времени; **if it had not been for** — для прошедшего времени.

**If it were not/but for** the rain, we would go for a walk.

Если бы не дождь, мы пошли бы сейчас прогуляться.

Задание. Переведите на русский язык следующие предложения!

1. But for this fact it would be reasonable to increase this value. 2. Were a beam of parallel rays reflected in all different



directions, we would call it diffuse reflection. 3. Were it not for you, I couldn't arrange all for the experiment. 4. But for this help, it would have been extremely difficult to deal with such accurate measurements. 5. Hadn't this assumption been made, we shouldn't have derived these data from experiments alone. 6. Were it not for such discoveries, we shouldn't make progress in this field of technology. 7. But for his demand we should have agreed on these terms. 8. Were we to approximate the ideal conditions of stability, we should provide the solution of the problem.

## (2) WORD AND PHRASE STUDY

**Задание.** Переведите на русский язык следующие цепочки слов:

Model 1: 

сущ. + сущ.
-------------

 light velocity — скорость света  
↑↓  
чего?←что?

earth surface; phase shift; density coefficient; energy density; wind velocity; proton mass; atom structure; vector quantity; energy unit

Model 2: 

сущ. + сущ. + сущ.
--------------------

 electron rest mass  
чего?←чего?←что?  
масса→покоя→электрона

electron velocity distribution; gas-supply line; voltage drop analysis; laser noise spectrum; current test system; air supply system

## (3) READING 31A

**Задание 1.** Внимательно прочитайте текст и найдите в нем гипотезы, выдвинутые Резерфордом при испытании модели атома Томсона.

### The Structure of the Atom

We could test the hypotheses concerning the structure of atoms by probing atoms with fast-moving charged particles. We could assume that the effect of electrons on such probes is negligible. A charged particle moving close to the surface of the nucleus of a nuclear atom would be subject to greater electric force than the same particle moving close to the surface of a plum-pudding atom. Nature has supplied us with

a convenient source of such charged atomic probes in the form of particles emitted at high speeds from certain substances (called radioactive).

We will examine these materials and their decay particles later. For the present we are interested only in the positively charged particles emitted from substances like radium with almost uniform speeds of about  $10^7$  metres/sec. The mass of an  $\alpha$ -particle (it is about 8000 times the mass of an electron) enables us to assume that its interactions with any electrons in an atom it is used to probe would have a negligible effect on its path. Any change in the speed or direction of an  $\alpha$ -particle as it passes through an atom is due to its interaction with the positive charge carriers in the atom.

In the experiment  $\alpha$ -particles were used to bombard a very thin foil of gold. (Gold can be rolled into foil so thin that it is transparent to light.) Since this is the way gold atoms are packed on the Thomson model, the positive charge is distributed uniformly. Which two of the following three could be the most likely possibilities?

1) None of the  $\alpha$ -particles get through the foil.

2) Some of the  $\alpha$ -particles get through the foil, whereas others are deflected back in the general direction from which they came.

3) All of the  $\alpha$ -particles get through the foil.

Let's try to consider the first and the third suppositions.

1) If the field of the atoms is large enough to stop any of the  $\alpha$ -particles, it should stop them all.

3) The  $\alpha$ -particles all travel at the same speed and the electric field through which they pass is uniformly distributed. If any get through, it is likely that all get through. Then, which of the possibilities (1, 2, 3) presented above is predicted by the Thomson theory of the atom? Evidently, all  $\alpha$ -particles should come through the gold foil with little or no deflection from their original path, which proved to be wrong.

**Задание 2. Употребите подходящие по смыслу слова из предлагаемых в скобках вариантов:**

1.  $\alpha$ -particles from the same source have approximately (*the same speed/widely varying speeds*). 2. All  $\alpha$ -particles are (*positively/negatively*) charged and have masses which are (*much less than/much greater than/equal to*) the masses of electrons. 3. The nuclear atom theory was advanced by (*J. J. Thomson/Ernest Rutherford*). 4. In the Thomson model of

the atom the positive charge carriers are (*uniformly distributed in/concentrated at the centre of*) the atom. 5. According to the nuclear atom theory the radius of the nucleus is (*equal to/less than/greater than*) the radius of the atom.

Задание 3. Заполните пропуски в предложениях соответствующими словами:

1. The two different theories about the structure of the atom were . . . by J. J. Thomson and Rutherford. 2. In the Thomson model of the atom the positive charge carriers are uniformly . . . throughout the atom as a whole. 3.  $\alpha$ -particle is a . . . charged particle moving at . . . speed.

#### (4) READING 31B

Задание 1. Прочитав текст за 2 минуты, найдите в нем ответ на два вопроса:

1. На чем основывались гипотезы о структуре атома в прошлом? 2. На чем основываются непосредственные свидетельства ученых о существовании атома и его структуре в наши дни?

Слова для понимания текста: **overall** — общий; **image** ['ɪmɪdʒ] — изображение; **distribution** — распределение; **shell** — оболочка; **nucleus** — ядро; **haze** — затуманенность, дымка; **visual** — наглядный

### Tools for Investigating the Structure of the Atom

\*Over the past century atomic physicists have built up a **sophisticated theory** of the structure of atoms based on **indirect evidence**, largely the light and X-rays the atoms emit. X-ray crystallography gave **direct evidence** for the existence of atoms, and in recent years electron microscopy has got overall images of single atoms.

Now it is possible to look inside atoms, so to speak, to make images of the **electron distribution** within them. The apparatus that does it is a two-stage instrument that uses electron-microscopic techniques together with holography.

Pictures of neon and argon atoms taken under conditions that show the electron distribution in the L shell (the second shell out from the nucleus) are enlarged 500 million times. (Since the electrons are always in **rapid motion**, the distribution shows us a kind of haze.)

Already **visual evidence** of one piece of atomic-structure theory appears: argon's L shell is only **half the diameter** of neon's. Theory expects this because the electric charge of

the argon nucleus is twice as large as neon's. \*More such visual confirmations are likely to follow.

Задание 2. Объясните, как вы понимаете слова, выделенные в тексте.

Задание 3. Переведите на русский язык предложения, помеченные звездочкой.

## (5) CONVERSATION PRACTICE

### I. Answer questions on Text 31A:

1. What two hypotheses were put forward concerning the structure of the atom at the beginning of the 20th century?  
2. Who advanced the plum-pudding model of the atom?  
3. What is the structure of the atom according to this model?  
4. Who advanced the counter hypothesis? 5. What is the structure of the atom according to this counter hypothesis?  
6. How can we test these hypotheses? 7. What fast-moving charged particles do you know? 8. What substances can serve a source of such fast-moving charged particles? 9. What is the mass of an  $\alpha$ -particle? 10. What can we assume concerning the interaction of an  $\alpha$ -particle with an electron? 11. What are the most likely possibilities of the interaction of  $\alpha$ -particles with a Thomson model atom?

II. Look at Fig. 9 and say: In case the Thomson theory of the atom is correct, which of the figures below (a), (b), (c) represents what should be the effect of bombarding a thin foil of metal with  $\alpha$ -particles?

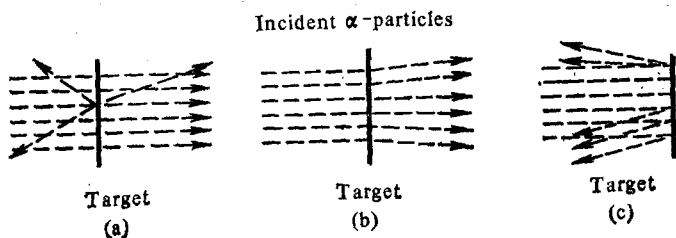


Fig 9

## (6) ENJOY YOURSELF

*Professor:* If you were in Africa and saw a lion coming what steps would you take?

*Student:* The longest steps I could.

lion *n* — лев, step *n* — шаг; take steps — принимать меры

*Bobby:* Why is it cold today?

*Father:* It is winter now. It is often cold in winter.

*Bobby:* But why?

*Father:* Oh, Bobby, do give me a little peace! What do you think would have happened, if I had asked my father so many questions?

*Bobby:* You would have learned how to answer mine.

## (7) HOME EXERCISES

I. Переведите на русский язык следующие термины:

**decay**—alpha d.; neutron d.; nuclear d.; two-photon d.

**distribution**—ion density d.; nuclear level density d.;

power level d.; energy level d.; energy-loss d.

II. Прочитайте следующие предложения и переведите их на русский язык, обращая внимание на употребление форм сослагательного наклонения:

1. Applied mathematics deals with physical quantities as if they were mathematical concepts. 2. Without the sun there would be no light, no heat, no energy of any kind. 3. The substance was cooled lest the reaction might occur. 4. He would solve the problem himself providing he had more time. 5. It is required that all research instruments be light and compact. 6. It is necessary that the weight of this device should be reduced to a minimum. 7. If the weight of it were reduced it could be used in our research. 8. If we had known the results this experiment would give us we should have changed the procedure of it. 9. I wouldn't have believed it unless I had seen it with my own eyes. 10. It was shown by Rutherford that the atom could be bombarded so that the electrons could be thrown off and the nucleus itself could be broken.

III. Заполните пропуски в предложениях соответствующей формой глагола в сослагательном наклонении:

1. It is suggested that we . . . the new laboratory. (*visit*)  
2. If he . . . here tomorrow I . . . everything to him. (*come, explain*)  
3. He listens as if he . . . in the problem. (*be interested*)  
4. You have to be careful lest you . . . your mistake. (*repeat*)  
5. Providing we . . . the necessary equipment, we . . . the experiment last month. (*get, complete*)  
6. Without this device they . . . not . . . such accurate results. (*obtain*)  
7. It is desirable that this method . . . in practice. (*test*)

IV. Переведите на английский язык;

1. В начале двадцатого столетия было выдвинуто несколько гипотез относительно структуры атома. 2. Две из них казались наиболее возможной вероятностью. 3. Было высказано предположение, что атом делим и имеет сложную структуру. 4. Предположили также, что целостность (unity) атома обусловлена взаимодействием положительных и отрицательных зарядов. 5. Атомы золота бомбардировались  $\alpha$ -частицами. 6.  $\alpha$ -частицы — положительно заряженные частицы с массой почти в 8000 раз больше массы электрона.

## Unit Thirty-Two

### (1) GRAMMAR. УПОТРЕБЛЕНИЕ СОСЛАГАТЕЛЬНОГО НАКЛОНЕНИЯ

Сослагательное наклонение употребляется в обстоятельственных придаточных предложениях:

1) о б р а з а д е й с т в и я (после союзов *as if, as though* — *как будто бы, как если бы*); употребляется синтетическая форма — *were*. Например:

He looked at me **as if** he  
were seeing me for the  
first time.

Он посмотрел на меня, *как если бы* он видел меня впервые.

The beam of particles is  
pictured **as though** it  
were emerging from a  
point source.

Пучок частиц изображен *так, как если бы* он исходил из точечного источника.

2) ц е л и (после союзов *that, so that, in order that* — *для того чтобы; lest* — *чтобы не*); употребляются синтетические формы (*be, give*) и аналитические формы с *should, may, might*. Например:

In order that such a change  
**may be possible**, heat must  
be removed from the gas.

*Для того, чтобы* такое изменение *было возможным*, нужно отнять тепло от газа.

I shall write down your  
address **lest** I (should)  
**forget** it.

Я запишу ваш адрес, *чтобы не забыть* его.

3) у с т у п и т е л ь н ы х (после союзов и союзных слов *though, although* — *хотя, however* — *как бы ни; whatever* — *что бы ни; какой бы ни; whoever* — *кто бы ни*;

**whichever** — *который бы ни*; **whenever** — *когда бы ни*; **wherever** — *где бы ни, куда бы ни*); обычно употребляются все синтетические формы (**be, give, were**) и аналитические с **should, may, might**. Например:

**Whatever** institute you  
(**should**) **graduate** from,  
you will always get a job  
in your profession.

He will pay attention to  
**whatever** you **may** say.

*Какой бы институт вы ни  
окончили, вы всегда по-  
лучите работу по спе-  
циальности.*

*Он обратит внимание на  
все, что бы вы ни сказали.*

**Задание.** Переведите на русский язык следующие предложения. Обратите внимание на форму сослагательного наклонения в придаточных обстоятельственных предложениях:

1. For simplicity the motion is pictured as if it were along a straight line. 2. Speak louder so that everybody might hear you. 3. I left this paper on the table so that you should read it. 4. Be careful with the instrument lest it be broken again. 5. I shall not raise this question though he should insist on it. 6. However simple it may be he will always make a mistake. 7. Make a note of it lest he (should) forget about it. 8. There was a heated discussion of the problem as if it were of great importance. 9. The clerk addressed the man as if he had never seen him before. 10. We raised the temperature very carefully lest the substance be overheated. 11. She was afraid lest she should be mistaken. 12. We must get up at six lest we should be late for the train. 13. Pay attention to whatever he may say. 14. In order that the photoelectric effect be observed the surface of the metal must be illuminated with a certain kind of electromagnetic radiation. 15. Whichever instruments be taken the result will be the same. 16. However far it were I will come to see you.

## (2) WORD AND PHRASE STUDY

**Задание 1.** Переведите на английский язык следующие термины:

high energy electron scattering; alpha-particle scattering; beta beam path; field-strength pattern; ion beam deflection; liquid-hydrogen target; X-ray lead screen;  $\alpha$ -particle scattering experiment

**Задание 2.** Переведите на английский язык следующие русские термины:

экран для защиты от рентгеновского излучения; газовая мишень; источник звука; источник излучения; источник ионизации; нейтронный источник

### (3) READING 32A

**Задание 1.** Внимательно прочитайте текст. Найдите предложения, в которых говорится о результатах экспериментальных исследований, подтверждающих ядерное строение атома.

## The Structure of the Atom

*(continued)*

In the previous passage we came to the conclusion that the Thomson theory of atomic structure predicts that all the  $\alpha$ -particles should pass through the gold foil with slight or no deflections. Let us see what is actually observed when  $\alpha$ -particles bombard a gold foil.

The apparatus used to study the structure of the atom and thus to enable us to decide between the plum-pudding and the nuclear hypotheses consists of a source of  $\alpha$ -particles of known speed, a target and an  $\alpha$ -particle detector to show exactly how the paths of incident particles are altered by interaction with atoms in the target. The fluorescent screen emits point flashes at places where high speed charged particles strike it.

In this particular experiment a thin gold foil acts as a target, the circular fluorescent screen acts as a detector and a piece of polonium acts as a source of  $\alpha$ -particles. The lead block acts to absorb any  $\alpha$ -particle which is not moving toward the target. The  $\alpha$ -particles which strike the target have the same velocity.

The experiment shows that most  $\alpha$ -particles pass through the foil either undeflected or only slightly deflected from their original paths. But it is not true of some  $\alpha$ -particles which strike the screen at some certain points after they interact with the gold foil.

So, the results of this experiment lead us to reject the Thomson hypothesis as it doesn't predict the scattering actually observed in this experiment.

Let us see if the nuclear theory can account for the observed scattering of  $\alpha$ -particles more adequately. Fig. 10 represents three  $\alpha$ -particles which enter the same nuclear atom at the same speed. The path of the incident particle is farthest



from the centre of the nucleus in (a); it is closest to the centre of the nucleus in (c). The angle ( $\theta$ ) between the path of the  $\alpha$ -particle after it interacts with nuclear charge and its initial path (the dashed line) is a measure of deflection produced in its path by the nuclear charge. The deflection is greatest when distance between the centre of the nucleus and the initial path of the  $\alpha$ -particle is shortest.

The electric force of the nucleus on the  $\alpha$ -particle is greatest in (c), when the  $\alpha$ -particle is closest to the nucleus. The amount by which the  $\alpha$ -particle is scattered from its initial path depends on its distance from the nucleus.

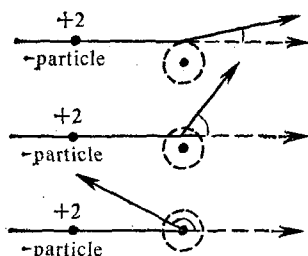


Fig 10

The fact that most incident  $\alpha$ -particles pass right through the foil with little or no deflection means that they pass through atoms at relatively large distances from their nuclei. This suggests that the diameter of an atom is much larger than the diameter of its nucleus. The  $\alpha$ -particles which are scattered most on the detector are those whose paths were close to the nuclei of gold atoms. Thus the nuclear atom really predicts the large angle scattering of some  $\alpha$ -particles in the experiments.

**Задание 2.** Употребите подходящие по смыслу слова из предлагаемых в скобках вариантов:

1. In our experiment a thin gold foil acts as a (*source of  $\alpha$ -particles/detector/target*). 2. The  $\alpha$ -particles striking the target have (*the same velocity/different velocities*). 3. The Thomson theory of atomic structure predicts that (*all/none/some*) of the  $\alpha$ -particles pass through the gold foil. 4. The fluorescent screen acts as a (*source of  $\alpha$ -particles/detector/target*). 5. A piece of polonium acts as a (*source of  $\alpha$ -particles/detector/target*). 6. The electric force of the nucleus on the  $\alpha$ -particle is greatest when the  $\alpha$ -particle is (*farthest from/closest to*) the nucleus. 7. The amount by which the  $\alpha$ -particle is scattered from its initial path (*depends/does not depend*) on its distance from the nucleus. 8.  $\alpha$ -particles considerably deflected from their initial path pass through atoms at relatively (*large/small*) distances from their nuclei.

**Задание 3.** Укажите номера предложений, которые являются правильными с точки зрения физики:

1. The Rutherford atom does not account for the scattering of  $\alpha$ -particles in a thin foil. 2. The plum-pudding atom does not account for the  $\alpha$ -particle scattering in a thin foil. 3. The electrons in an atom account for an appreciable part of the mass of the atom. 4. The electrons in an atom account for all of its negative charge.

#### (4) READING 32B

**Задание 1.** Внимательно прочитайте текст и найдите в нем факты, объясняющие, почему в капиталистическом обществе люди с недоверием и страхом относятся к техническому прогрессу.

Слова для понимания текста: benefit — выгода; chip — полупроводниковый кристаллик с интегральной схемой; shortage — недостаток; injury — повреждение; threat — угроза

### Science and Technology

In the Soviet Union there is great enthusiasm for the inventions, innovation and advances in science and technology which is making labor easier and life more enjoyable. Under socialism the people get the benefits of new technology. More and more funds are put into science and technology. The advanced computers, development of micro-electronic chips and robots are viewed as a means of overcoming the shortage of labor and a means of eliminating the hardest work done by human hands.

In the U.S. the "chips and robot revolution" brings with it fears (страх) and insecurity about being replaced by computers and robots. In the Soviet Union technology is a blessing, a major means of increasing the well-being and leisure (отдых) of all the people, a means of making work easier and life healthier, a means of raising the living standards.

Under capitalism, these same technological achievements mean cuts in the standard of living and quality of life. It means more accidents and injuries. It can mean literally a loss of a worker's means of livelihood. It is used as a threat hanging over the heads of workers, as an instrument of speedup and extra profits.

From the report by Gus Hall, *Daily World*,  
May 14, 1981.

**Задание 2.** Переведите текст на русский язык.

## (5) CONVERSATION PRACTICE

### I. Answer questions on Text 32A:

1. What does the apparatus used to study the structure of the atom consist of? 2. What acts as a target? 3. What is the source of  $\alpha$ -particles? 4. What is used as a detector? 5. What is the lead block used for? 6. What does the experiment show? 7. Does the Thomson hypothesis account for the observed scattering of  $\alpha$ -particles? 8. What hypothesis accounts for the observed scattering of  $\alpha$ -particles?

II. Look at the apparatus used to study the structure of the atom and describe it.

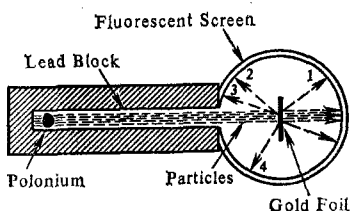


Fig 11

## (6) ENJOY YOURSELF

*Willie:* I have an awful toothache.

*Tommie:* I should have taken out the tooth if it were mine.

*Willie:* Were it yours, I would too.

---

awful ['ɔːfʊl] *a* — ужасный; tooth [tuːθ] *n* — зуб; toothache ['tuːθeɪk] *n* — зубная боль.

## (7) HOME EXERCISES

I. Выпишите из текста 32А английские эквиваленты следующих русских словосочетаний:

переменный ток; пунктирная линия; быть справедливым относительно . . . ; прямо через . . . ; по направлению к мишени; исходный (первоначальный) путь; слегка отклоненный; сделать выбор между . . . ; бомбардирующие частицы; точечные вспышки; рассеяние на большие углы

II. Прочитайте следующие предложения и переведите их на русский язык. Обратите внимание на употребление сослагательного наклонения:

1. It is essential that the measurements be made very accurately. 2. You have to complete the research however difficult it should be. 3. The Earth behaves as if it were a large magnet. 4. The control was required lest the reaction should stop. 5. The whole weight of a body acts as though it were concentrated at a single point, this point being called the centre of gravity. 6. Whenever this device be used, it must be operated with great care. 7. Later developments in physics have shown that the electron cannot be accurately considered as if it were in orbital motion about the nucleus. 8. He carried out all the calculations carefully so that he should get accurate results. 9. Had he stayed another two hours, he would have seen the results of the experiment. 10. The metal is so warm as if it were heated. 11. Were there no friction we could not even walk. 12. Should the moving body stop, all friction would disappear. 13. But for them the new method would not be put into practice. 14. Oxygen is an element of greatest importance to us as all living things would die without it.

### III. Переведите на английский язык:

1. Если бы я мог, я существенно изменил бы этот план. 2. Давайте сядем на автобус, чтобы добраться туда вовремя. 3. Никто не узнал бы о его приезде, если бы они не встретили его вчера на улице. 4. Вы выглядите так, как будто вы больны. 5. Я бы хотел, чтобы они прекратили разговаривать. 6. Без этого прибора они не провели бы эксперимент. 7. Необходимо, чтобы вы представили доклад к концу месяца. 8. Профессор требует, чтобы мы прочитали все эти статьи.

## TEST SEVEN

Завершив работу над материалом уроков 29—32, выполните следующие упражнения. Проверьте правильность их выполнения по ключу.

I. Назовите номера предложений, в которых выделенные глаголы выступают в форме сослагательного наклонения:

1. Dr. Ivanov said that the Institutes **would begin** the search for ways and means of providing power in space. 2. Suitable fuels **could be provided** by heavy and superheavy hydrogen. 3. Space flights over long periods **would not have been possible** without the development of new sources of energy. 4. He said that the system **would be rather expensive**. 5. Were it possible to reduce the losses by only one per cent, the system

would have paid for itself in one year. 6. He said that the system was so complicated that only the basic principle **would be outlined**. 7. Research and technology **should provide** the basis for a better everyday living. 8. Dr. Ivanov says that it didn't occur to him at that time that the system **might be introduced** into other fields as well. 9. City and town areas **should be protected** as far as possible from the negative influences of industry and technology.

II. Назовите номера предложений в упр. I, в которых выделенные глаголы имеют значение долженствования.

III. Назовите номера условных предложений, перевод которых вы начали бы союзом (*при условии*) *если* . . . :

1. In case you are interested in new irrigation methods, particular attention should be paid to the successful experiments made last year. 2. Could there appear any change in supply, the device would register it. 3. They looked at the device as if they had never seen it before. 4. The first forms of transportation were used on land making direct human contacts possible. 5. But for the high price it would be only reasonable to use the system for many domestic purposes. 6. Were it possible to reduce the price, the system would find wide application. 7. A decision is to be made regarding which system is to provide the basis for a prototype experimental vehicle. 8. As things are at present, the prospects for this new technology are considered as providing cause for optimism. 9. Providing this project were realized, the new train would run through huge tubes at twenty times the speed of sound by means of a magnetic drive.

IV. Прочитайте текст. Найдите предложения, в которых высказываются предположения относительно существования разумной жизни во Вселенной.

## Are We Alone in the Universe?

For some time men have speculated on the possibility that there is intelligent life elsewhere in the Universe.

Do we really expect to find intelligent life beyond our solar system? Let us now consider what we could do to make contact with other intelligent communities. If we started exploring the neighbouring planets, could we find them? The answer to this is given by the experience of Columbus. He didn't find in America a civilization that was technologically more advanced than that of Europe. Had there

been one there, it would have discovered Europe. The startling conclusion to this is that the more advanced communities, whose existence we have surmised, ought to be here discovering us. Have they discovered us? Were they here long ago? If so have they left any signs of their visit?

The main gap in our knowledge is that we don't know whether life has evolved on the planets where the conditions are favourable, of these other communities some would be more advanced technologically than ourselves, some less so.

If they are so advanced, will they be interested in us? Some of the intelligent communities may have developed a Yoga-like philosophy and spend their time in meditation. Others may have solved all political problems and just be watching television.

The key thing as regards future contact with advanced communities is the flow of fundamental knowledge about the Universe. This acquisition of new information from a more advanced planet would be a tremendous experience in the culture of the human race.

# LABORATORY WORKS

## *I. Fundamental Course*

### LABORATORY WORK I

I. Читайте за диктором безличные предложения, Обращайте внимание на ударения в словах и интонацию в предложениях:

1. It snows. It seldom snows. It seldom snows hard. It seldom snows hard in the south.

2. It rains. It often rains. It often rains heavily. It often rains heavily in autumn.

3. It becomes cold. It usually becomes cold. It usually becomes cold at night. It usually becomes cold at night in July here.

II. Ответьте на вопросы, употребляя *a little* или *a few*:

Model 1: *Speaker*: Is there much coffee in the box? ->

*Student*: Not much, there is only **a little**.

Model 2: *Speaker*: Are there many plates on the shelf? ->

*Student*: Not many, there are only **a few**.

1. Is there much tea in the box? 2. Do they eat much meat? 3. Were there many students in the library yesterday? 4. Do they know many English writers? 5. Are there many big buildings in the town? 6. Have they got much time before classes? 7. Do they take many books from the library?

III. Ответьте на вопросы утвердительно или отрицательно в зависимости от ситуации, предложенной в скобках:

Models: *Sp.*: Was it cold yesterday? (*rather warm*) *St.*: No, it wasn't. It was **rather warm**; . . . (*very cold*) -> *St.*: Yes, it was. It was **very cold**.

1. Was it your day off yesterday? (*Sunday*) 2. Were you indoors yesterday? (*outdoors*) 3. Was the weather fine? (*rather dull*) 4. Was it sunny in the morning? (*bright and sunny*) 5. Was it raining in the afternoon? (*cats and dogs*) 6. Was it wet and cold? (*very wet and cold*) 7. Were you tired? (*fine*) 8. Were you with your friends? (*with Mike and Nick*)

IV. Выразите сомнение по поводу услышанного, используя наречие *really*:

Model 1: *Sp.*: It is becoming cold. → *St.*: Is it really becoming cold?

Model 2: *Sp.*: It becomes dark. → *St.*: Does it really become dark?

1. It's cool today. 2. It looks like rain. 3. It is getting dark. 4. It is raining heavily. 5. It often rains at this time of a year. 6. It becomes difficult to work. 7. It is snowing hard. 8. It always snows hard in March.

**V. Ответьте на вопросы:**

Model 1: *Sp.*: How many days are there in November? → *St.*: There are thirty days in November.

1. How many months are there in a year? 2. How many seasons are there in a year? 3. How many weeks are there in a month? 4. How many days are there in a week? 5. How many hours are there in a day? 6. How many minutes are there in an hour? 7. How many minutes are there in half an hour? 8. How many minutes are there in a quarter of an hour?

**VI. Запомните следующие выражения классного обихода:**

Now let's go through your home-exercises. Will you read Exercise 5 on page 70, please. There are some serious (bad) mistakes in the first sentence. Who can correct the mistakes?

**LABORATORY WORK 2**

**I. Читайте за диктором:**

as white as snow; as clear as day; as large as life; as round as a ball; as red as a rose; as black as a cloud; much older than me; much thinner than Jack; much busier than Sunday; much longer than the Thames

Which of the two boxes is heavier? Which is the busiest street of London?

**II. Прослушайте информацию диктора. Сравните полученную информацию с данными, приведенными в скобках:**

Model 1: *Sp.*: Autumn is a cold season. (*winter*) → *St.*: But winter is much colder than autumn.

1. Spring is a warm season. (*summer*) 2. Cyprus is a big island. (*England*) 3. Europe is a large continent. (*Asia*) 4. The Neva is a wide river. (*The Volga*) 5. The Volga is a long river. (*The Lena*) 6. The White Sea is rather small. (*The Red Sea*) 7. France is a big country in territory. (*India*) 8. The climate of France is mild. (*Italy*)



**III. Прослушайте предложения. Выразите свое согласие с диктором, используя превосходную степень прилагательных:**

**Model:** *Sp.:* The Lena is a very long river. (*the USSR*) →  
*St.:* Yes, it's **the longest river in the USSR.**

1. The Baikal is a very large lake. (*the USSR*) 2. Moscow is a very big city. (*the USSR*) 3. The Soviet Union is a large country in territory. (*the world*) 4. Tokyo is a very big city. (*the world*) 5. The Mississippi is a very long river. (*the world*) 6. New York is a very large city. (*the USA*)

**IV. Ответьте на следующие вопросы:**

**Model 1:** *Sp.:* Which is older Moscow or Norilsk? → *St.:* **Moscow is older than Norilsk.**

1. Which is wider a sea or an ocean? 2. Which is bigger New York or Washington? 3. Which is colder April or May? 4. Which is warmer autumn or summer? 5. Which is larger England or the United States? 6. Which is hotter June or July? 7. Which is milder the climate of England or the climate of the Soviet Union? 8. Which is longer the Nile or the Volga?

**Model 2:** *Sp.:* Which is the longest river in the Soviet Union? → *St.:* The Lena is the longest river in the Soviet Union.

9. Which is the largest lake in the Soviet Union? 10. Which is the biggest city in the Soviet Union? 11. Which is the shortest month of the year? 12. Which is the largest country in the world? 13. Which is the biggest city in the world? 14. Which is the longest river in the world? 15. Which is the largest city in the United States? 16. Which is the largest city in England?

**V. Ответьте на вопросы диктора отрицательно:**

**Model:** *Sp.:* Is it as sunny in April as in July? → *St.:* No, it's not as sunny in April as in July.

1. Is it as rainy in summer as in autumn? 2. Was it as cold in November as in December? 3. Was the weather as hot in July as in August? 4. Is winter as mild in Siberia as in the Caucasus? 5. Is the Moon as big as the Sun? 6. Is your flat as large as this one? 7. Is his brother as young as Nick? 8. Are you as busy today as any other day?

**VI. Запомните следующие выражения классного обихода:**

Write a larger hand. Leave a margin on the left-hand side. Make it wider. Don't write in the margin! Give in your exercise-books for correction, please. I'm going to mark your homework. Student on duty, collect the exercise-books.

### LABORATORY WORK 3

#### I. Читайте за диктором:

bad (badly)—worse—worst; good (well)—better—best; much (many)—more—most; little (few)—less—least; far—farther—farthest; far—further—furthest

distinct—more distinct—the most distinct; suitable—more suitable—the most suitable; much more available; the most available of all; much more comfortable; the most comfortable of all; much more gradually; most gradually

II. Закончите следующие предложения по образцу. Обратите внимание на употребление *one* вместо ранее упомянутого существительного:

Model: Sp.: This shelf is too small. Let's take a . . . (*big*).

→ St.: Let's take a bigger one.

1. This tea is too hot. Have that . . . (*cold*). 2. This pencil is too short. Take that . . . (*long*). 3. This clock is too small. We must have a . . . (*big*). 4. This room is too dark. Let's go to a . . . (*light*). 5. This problem is too difficult. Let's begin with an . . . (*easy*). 6. This pen is too bad. Take a . . . (*good*). 7. This work is too difficult for her. Give her a . . . (*simple*). 8. This pencil is too thick. Have you got a . . . (*thin*)?

#### III. Согласитесь с мнением диктора:

Model: Sp.: I think my flat isn't as good as that one. (*bad*)

→ St.: You are right. It's worse than that one.

1. I think this box isn't as heavy as that one. (*light*) 2. I find this work isn't as difficult as that one. (*easy*) 3. I think this building isn't as high as that one. (*low*) 4. I find this picture isn't as bad as that one. (*good*) 5. I find winter in England isn't as cold as in the USSR. (*mild*) 6. I think this problem isn't as difficult as that one. (*simple*)

IV. Ответьте на вопросы. Скажите, что интересующее диктора понятие (или предмет) обладает данным качеством в большей степени:

Model: Sp.: Is this problem as difficult as that one? →

St.: No, it's more difficult than that one.

1. Is this language as difficult as that one? 2. Is this flat as comfortable as that one? 3. Is this film as interesting as

that one? 4. Is this work as important as that one? 5. Is this place as comfortable as that one? 6. Is this instrument as available as that one? 7. Is this word as common as that one? 8. Is this idea as interesting as that one?

V. Сравните предметы, понятия, явления?

Model 1: *Sp.*: thin books → *St.*: This book is **thinner** than that one. It is the **thinnest** of all.

1) funny stories; 2) heavy boxes; 3) quiet places; 4) low doors; 5) wet seasons; 6) mild climates

Model 2: *Sp.*: interesting lectures → *St.*: This lecture is **more interesting** than that one. It is the **most interesting** of all.

7) difficult problems; 8) available instruments; 9) important seminars; 10) comfortable rooms

VI. Спросите, являются ли следующие действия обычными для указанного времени. Употребите наречие *generally*:

Model: *Sp.*: It's raining now. (*in autumn*) → *St.*: Does it **generally** rain in autumn?

1. It's snowing heavily today. (*in winter*) 2. It's getting darker. (*at this time in winter*) 3. The boys are walking in the park. (*in the afternoon*) 4. The students are making experiments. (*at physics seminars*) 5. The children are having a rest. (*after lessons*) 6. Mother is cooking dinner. (*in the evening*) 7. Jane is helping her mother. (*when she comes from school*) 8. Father and Nick are watching TV. (*at night*)

#### LABORATORY WORK 4

I. Читайте за диктором следующие предложения. Обратите внимание на произнесение окончания *-ed* в причастиях прошедшего времени стандартных глаголов!

[t]	help — helped	He has <b>helped</b> her with maths.
	look — looked	I have <b>looked</b> at the picture.
	watch — watched	Have you <b>watched</b> that programme?
[d]	ask — asked	She has not <b>asked</b> me about it.
	play — played	They have <b>played</b> that record.
	live — lived	They have <b>lived</b> in England for a year.
	answer — answered	Has she <b>answered</b> your question?
	stay — stayed	I have <b>stayed</b> there.

[id]	point — pointed	They have <b>pointed</b> at it.
	wait — waited	He has <b>waited</b> for you for two hours.
	end — ended	Has everything <b>ended</b> well?
	invite — invited	We haven't <b>invited</b> them to the party.

II. Ответьте на вопросы диктора. Скажите, что вы (или другие лица): 1) уже выполнили эти действия или 2) еще их не выполнили:

Model 1: Sp.: Have you had dinner *yet*? → St.: Yes, I have **already** had dinner.

Model 2: Sp.: Have you had dinner *yet*? → St.: No, I have not had it *yet*.

1. Have you had tea *yet*? 2. Have you looked through morning newspapers *yet*? 3. Have the children done their homework *yet*? 4. Has Ann written these exercises *yet*? 5. Has Nick taken that book *yet*? 6. Have they spoken to you about it?

III. В ответ на вопрос сообщите диктору, что указанные действия были только что выполнены. (В упражнении использованы только стандартные глаголы.):

Model: Sp.: Can anybody help the woman? (*I*) → St.: I have **just** helped her.

1. Can anybody ask the way? (*we*) 2. Can anybody look at that instrument? (*he*) 3. Can anyone call the engineer? (*that woman*) 4. Can anybody play the record? (*Nelly*) 5. Can anyone listen to the record? (*I*) 6. Can anybody open that box? (*Mike*) 7. Can anybody start the work? (*they*) 8. Can anyone answer his question? (*I*) 9. Can anybody invite her to the party? (*I*)

IV. Прослушайте информацию диктора. Спросите, приходилось ли ему (или другим указанным лицам) выполнять подобные действия:

Model: Sp.: Jane has gone to the Caucasus. (*you*) → St.: Have you ever gone to the Caucasus?

1. He has been to the Crimea. (*you*) 2. I have never used this instrument. (*they*) 3. I have never spoken to this engineer. (*Nick*) 4. They have seen that new film. (*you*) 5. Mike has learnt German at school. (*his sister*) 6. They have spent the vac at the Black Sea. (*your family*) 7. I have never watched their work. (*the engineer*) 8. Tom has helped them with maths. (*you*)

V. Прослушайте предложения из упр. IV еще раз. Скажите, что лица, указанные в скобках, также совершали (или не совершали) перечисленные действия:

Model 1: Sp.: He has gone to the Caucasus. (*you*) →  
St.: You have gone there too.

Model 2: St.: Tom has never been to the Caucasus. (*Nelly*)  
→ St.: Nelly has never been there either.

VI. Читайте за диктором слова с отрицательными приставками: *in-, im-, il-, ir-*. Обратите внимание на то, что приставка безударная:

available	—inavailable	regular	—irregular
availability	—inavailability	regularity	—irregularity
possible	—impossible	legal	—illegal
possibility	—impossibility	legality	—illegality
different	—indifferent	variable	—invariable
difference	—indifference	variability	—invariability

VII. Слушайте и запоминайте:

Teacher: What have you done for today?

Student: We have prepared Unit 4. We have learnt the new words, prepared Reading 4A and done some exercises in writing and orally.

## LABORATORY WORK 5

I. В разговорной речи в Present Perfect обычно употребляются сокращенные формы глагола *to have*:

I've [aɪv], he's [hi:z], she's [ʃi:z], it's [ɪts], we've [wi:v],  
you've [ju:v], they've [ðeɪv]

Читайте предложения за диктором, обращая особое внимание на чтение сокращенных форм:

I've seen it. He's read it. She's done it. It's been here.  
We've got it. You've come here. They've gone there.

II. Прослушайте предложения и скажите, что другие лица уже выполнили указанные действия:

Model: Sp.: We are having an English class. (*they*) →  
St.: They've already had an English class.

1. Jane is preparing for classes. (*Nelly*) 2. Tom and Pete are playing chess. (*the other two boys*) 3. The children are eating porridge. (*this girl*) 4. You are writing a letter. (*I*) 5. Father is leaving for his factory. (*mother*) 6. The boys are going home. (*Nick*) 7. The man is reading the morning newspaper. (*we*) 8. They are having supper. (*we*)

III. Объясните, почему описываемые факты имеют место. Используйте слова в скобках:

Model: Sp.: The sandwiches are still in the box. (*they, to eat*)-> St.: Because **they haven't eaten** them yet.

1. The window is still open. (*I, to close*) 2. Mother is still in her office, (*she, to do the work*) 3. The children are still at home, (*they, to leave for school*) 4. You must not take the book, (*he, to read*) 5. There isn't a picture on the wall. (*he, to bring*) 6. We can't find any book there. (*she, to put*) 7. I don't see any letter here. (*he, to write*) 8. There aren't any instruments here. (*they, to leave*)

IV. Прослушайте информацию диктора. Спросите, кто выполнил перечисленные действия:

Model: Sp.: There's no water in the glass. (*drink*) -> St.: Who has drunk it?

1. There's some tea in the cup. (*make*) 2. There's no porridge on the plate. (*eat*) 3. There's a letter on the desk. (*write*) 4. There's a bag on the shelf. (*leave*) 5. There's the dinner on the table. (*cook*) 6. There's a picture on the wall. (*put up*) 7. There're some records in the box. (*bring*) 8. There're some newspapers on the desk, (*read*)

V. Прослушайте предложения и выясните, какие действия будут выполняться в дальнейшем:

Model: Sp.: I've written three exercises. -> St.: **What are you going to write next?**

1. We've prepared this text. 2. I've read the morning newspaper. 3. They've taken some books on physics. 4. I've seen two new films since Monday. 5. He's listened to that record. 6. Mother's offered a cup of tea to us. 7. The boy's eaten his porridge. 8. I've had my cup of coffee.

VI. Переведите на английский язык:

Model: Sp.: Работа, сделанная нами. -> St.: The work done by us.

1. Упражнение, сделанное мною. 2. Книги, взятые им. 3. Работа, прочитанная ею. 4. Работа, предложенная нами, 5. Газета, оставленная мною. 6. План, выполненный им. 7. Обед, приготовленный ею. 8. Пластинка, прослушанная нами.

VII. Слушайте и запоминайте:

Teacher: Have all of you been to the English laboratory?

Student: Yes, all of us have. We've done Laboratory Work 5 and listened to the new passage.

## LABORATORY WORK 6

I. Читайте за диктором причастия прошедшего времени следующих стандартных глаголов. Обращайте внимание на чтение окончания *-ed*:

[d]	[t]	[ɪd]
listened	packed	connected
followed	passed	constructed
varied	placed	included
covered	talked	attended
offered	stepped	devoted
gathered	danced	attracted
improved	developed	provided
recognized	stretched	graduated

II. Прослушайте следующие пары предложений с глаголом-сказуемым в действительном и страдательном залогах. Сравните данные предложения по смыслу. Переведите эти предложения на русский язык:

1. The students ask many questions. The students **are asked** many questions. 2. I help my friends. I **am helped** by my friends. 3. We **met** her at the station. We **were met** by her at the station. 4. He usually **tells** us the news. He **is usually told** the news by us. 5. The film **has followed** the lecture. The film **has been followed** by the lecture.

III. Дайте полные утвердительные или отрицательные ответы:

Model 1: Sp.: Were you asked a lot of questions at the exam? (*yes*) → St.: Yes, I was. I was asked a lot of questions at the exam.

Model 2: Sp.: Have you been asked to come early? (*no*) → St.: No, I haven't. I've not been asked to come early.

1. Are you helped with physics by your friend? (*yes*) 2. Are you often invited to parties? (*no*) 3. Were you helped by your brother? (*no*) 4. Is physics studied in the second year? (*yes*) 5. Are text-books often taken out of the library by them? (*yes*) 6. Is the shop closed at 6? (*no*) 7. Have the exercises been written well? (*yes*) 8. Has breakfast been made yet? (*no*) 9. Was the lecture listened to with interest? (*yes*)

IV. Выразите удивление по поводу услышанного, используя слово *really*:

Model: Sp.: The shop is closed? → St.: Is it **really** closed?

1. This method is used in their work. 2. The letter was written only yesterday. 3. The exercise-book has been left

on the table. 4. She has been asked to come early. 5. Tom has cooked dinner himself. 6. They were helped greatly by their friends. 7. This exam is taken in March. 8. Political economy is taken by the third-year students.

**V. Скажите, что указанное действие только что произошло:**

**Model:** *Sp.:* You must do this work. → *St.:* This work **has just been done**.

1. You must offer them your help. 2. Nick must open the box. 3. She must write a letter to her mother. 4. They must prepare Unit 3. 5. You must learn the new words. 6. The children must take these books out of the library. 7. Mother must cook the dinner. 8. They must read this paper.

**VI. Объедините два предложения в одно, используя причастие II в качестве определения:**

**Model:** *Sp.:* Some new methods **are developed** here. They are interesting. → *St.:* Some new methods **developed** here are interesting.

1. The students are helped by their teacher. They are first-year students. 2. These English books are read by the first-year students. They are not difficult. 3. Some modern blocks are built in this street. They are comfortable. 4. These exercises are written at home. They are simple. 5. The plans are changed. They are very important. 6. The two methods are used. They are almost the same. 7. This new subject is studied in the fifth year. It is very interesting. 8. Some other new subjects are taken by the fifth-year students. They are very important.

**VII. Слушайте и запоминайте:**

- How many exams have you taken this winter?
- I've taken four exams. I have passed my exams well.
- When are you going to graduate (to leave college)?
- I'm going to graduate in five years.

## **LABORATORY WORK 7**

**I. Читайте за диктором следующие словосочетания:**

the constructed model; the connected lines; the learnt words; the unrecognized plan; the ideas developed; the place chosen; the system studied; the method improved; the lecture delivered by him; the plan offered by them; the instrument made by this factory; the university founded in 1775



Переведите эти сочетания на русский язык.

II. Ответьте на вопросы. Скажите, что указанное действие произошло давно:

Model: Sp.: Has the report been made recently? (*two months ago*) → St.: It was made two months ago.

1. Has the letter been written recently? (*a week ago*)
2. Has the work been finished lately? (*a month ago*)
3. Have these two lines been connected recently? (*last year*)
4. Has this plan been developed lately? (*three years ago*)
5. Have these modern buildings been constructed recently? (*two years ago*)
6. Has this equipment been provided lately? (*a month ago*)
7. Has this method been improved recently? (*long ago*)
8. Have these changes been made recently? (*in 1974*)

III. Скажите, что нижеприведенные действия не выполняются в иных условиях:

Model: Sp.: English is spoken in Canada, but . . . in France. → St.: English is spoken in Canada but it is not spoken in France.

1. Chemistry is taken by the first-year students but . . . by the second-year students.
2. Examinations are taken in January but . . . in March.
3. You are taught English at college but . . . French.
4. This library is used by students but . . . by teachers.
5. Kate was helped by her sister but . . . by her friends.
6. You were asked to come early but . . . so late.
7. This work has been conducted by our group but . . . by the other one.
8. This book has been translated into French but . . . into English.

IV. Спросите диктора...

if he is at college (Are you at college?); if he is a first-year student; what languages are taught at his college; what subjects are taken in the first year; who are lectures on physics given by; when exams are usually taken; how many exams have been taken by him this winter; who helps him with maths.

V. Измените данные предложения, сделав центром высказывания объект действия (не называя лица, совершающего действие):

Model 1: Sp.: I use this book. → St.: This book is used.

Model 2: Sp.: I often help her with maths. → St.: She is often helped with maths.

1. We always plan the work.
2. I meet her at the station.
3. You have learnt a few words today.
4. He has told the students about the exam.
5. The students go to all the lec-

tures. 6. This laboratory conducts interesting experiments. 7. We have asked the girl many questions. 8. They have followed this new method.

**VI. Объедините два предложения, используя *as well***

**М о д е !** *Sp.*: She can read English. She can also read Spanish. → *St.*: She can read English and Spanish **as well**. (Она читает не только по-английски, но также и по-испански.)

1. We help Nelly. We also help Kate. 2. They've visited Leningrad. They have also visited Viborg. 3. We're taught physics. We're also taught maths. 4. I'm helped by Nick. I'm also helped by Pete. 5. They are using this text-book. They are using that text-book, too. 6. I've left my exercise-book. I've left my English text-book, too. 7. Jane collects stamps. Jane collects records, too. 8. We've been told about the new method. We've been also told about some new results.

**VII. Выразите одним словом с отрицательной приставкой следующие понятия:**

**М о д е !** *Sp.*: not seen before → *St.*: **unseen before**

not able to do it; not changed colour; not comfortable table; not cultured man; not told story

**VIII. Слушайте и запоминайте!**

You are unprepared (badly prepared) today. You took too much of our time. I'm going to call on you next time.

**LABORATORY WORK 8**

**I. Читайте за диктором. Обратите особое внимание на чтение глаголов в простом прошедшем времени:**

ask—asked	I <b>asked</b> her about it.
like—liked	He <b>liked</b> the idea.
help—helped	You <b>helped</b> me greatly.
stop—stopped	They <b>stopped</b> there at night.
stay—stayed	We <b>stayed</b> at home last night.
clean—cleaned	She <b>cleaned</b> the room yesterday.
study—studied	We often <b>studied</b> together.
conduct—conducted	They <b>conducted</b> the research themselves.

**II. Спросите, действительно ли данные действия имели место!**

Model: Sp.: he came → St.: Did he really come?

he went; he knew; I met; we spoke; we did; I began; she chose; she took; I wrote; we had; they heard; they learned

III. Скажите, что в указанные моменты в прошлом произошли те же самые, упомянутые действия:

Model: Sp.: We often watch TV at night. (*last night*) → St.: We watched TV last night, too.

1. I often return home early. (*yesterday*) 2. Kate always helps her sister with maths. (*two hours ago*) 3. They study together every evening. (*last night*) 4. Pete visits his parents every summer. (*last summer*) 5. He sometimes gets letters from them. (*the day before yesterday*) 6. We often have dinner rather late. (*last evening*) 7. Classes usually begin at 8.45. (*yesterday*) 8. I sometimes meet them on my way to college. (*two days ago*)

IV. Возразите диктору. Объясните, что произошло на самом деле:

Model: Sp.: She went to the post-office. (*shop*) → St.: She didn't go to the post-office. She went to the shop.

1. Father came home late. (*early*) 2. Mary worked very well. (*rather badly*) 3. They knew a lot about it. (*little*) 4. He sat at the window. (*door*) 5. Alec took my text-book. (*exercise-book*) 6. She went to school in the morning. (*library*) 7. They met a lot of people in the street. (*few*) 8. They spoke English. (*French*)

V. Скажите, что указанные действия произошли не утром, а днем:

Model: Sp.: He didn't buy the book in the morning. → St.: He bought it in the afternoon.

1. Pete didn't write a letter in the morning. 2. Ann didn't get the book in the morning. 3. They didn't speak to me in the morning. 4. We didn't begin the work in the morning. 5. The professor didn't give a lecture in the morning. 6. The students didn't do exercises in the morning. 7. We didn't go there in the morning. 8. They didn't meet her in the morning.

VI. Дайте утвердительные или отрицательные ответы:

Model: Sp.: Did he stop the work? → St.: Yes, he did. He stopped the work. (No, he didn't. He didn't stop the work.)

1. Did they ask questions? (*yes*) 2. Did he answer questions? (*yes*) 3. Did they essentially improve the plan? (*no*) 4. Did he leave college? (*yes*) 5. Did she read that book? (*yes*)

6. Did they speak much? (*no*) 7. Did the students learn the new words? (*yes*) 8. Did he hear about it? (*no*)

VII. Выразите сомнение по поводу услышанного при помощи наречия *really*:

М о д е л ь: *Sp.*: He came yesterday. → *St.*: Did he **really** come yesterday?

1. Jane wrote a lot of letters yesterday. 2. His son graduated last year. 3. They had dinner very early last night. 4. He helped me greatly with maths then. 5. She studied this problem seriously. 6. They heard about it last week. 7. This group conducted a significant research. 8. I chose those books for myself.

VIII. Уточните время совершения действия:

М о д е л ь: *Sp.*: We've packed the things. → *St.*: When **did** you pack the things?

1. We've improved the method considerably. 2. They've returned from Kiev. 3. His daughter has graduated from Moscow University. 4. We've corrected the exercises. 5. They've included it into their work. 6. I've heard about it. 7. John has left school. 8. She's found all the necessary reference-books.

IX. Слушайте и запоминайте:

You did your work carelessly yesterday. You must do this work again. Rewrite the exercises at home and revise Units 7 and 8.

### LABORATORY WORK 9

I. Прослушайте следующий диалог. Обратите внимание на употребление модальных глаголов и их эквивалентов в простом прошедшем времени:

- You couldn't go to the cinema yesterday, could you?
- No, I couldn't. I was busy at college and had to stay there after classes.
- Did you have to stay there long?
- Yes, I did. I returned home only at 10 p. m.

II. Ответьте на вопросы диктора утвердительно или отрицательно по образцу:

М о д е л ь 1: *Sp.*: Could Tom speak English last year? (*yes/no*)  
→ *St.*: **Yes, he could. He could speak English last year. (No, he couldn't. He couldn't speak English last year.**

1. Could you solve that problem at the last seminar? (*no*)
2. Could they conduct that difficult experiment? (*yes*)
3. Could you compare these two countries? (*yes*)
4. Could they achieve good results? (*no*)

**Model 2:** *Sp.:* Did you have to take exams in July? (*yes/no*) → *St.:* Yes, I **did**. I **had to take exams** in July. (*No, I didn't. I didn't have to take exams in July.*)

5. Did you have to work much last summer? (*yes*)
6. Did the boys have to leave early? (*no*)
7. Did she have to follow that method? (*no*)
8. Did they have to pack the things themselves? (*yes*)

**III. Объясните, почему действия не могут (не могли) быть выполнены:**

**Model 1:** *Sp.:* Why can't you do it now? (*to go home*) → *St.:* Because I **must go home**.

**Model 2:** *Sp.:* Why couldn't you do it at once yesterday? (*to go home*) → *St.:* Because I **had to go home**.

1. Why can't she go to the cinema? (*to stay with the baby*)
2. Why can't you help me? (*to write some exercises*)
3. Why couldn't they leave college at once? (*to prepare for classes first*)
4. Why can't you give her the book? (*to read it myself*)
5. Why couldn't they translate the text? (*to write out the new words first*)
6. Why couldn't she leave for Minsk yesterday? (*to wait for her father*)
7. Why can't he go with us? (*to speak to his professor*)
8. Why couldn't you write about it? (*to check the results*)

**IV. Скажите, что действие, о котором идет речь, было выполнено. Уточните время выполнения действия в прошлом:**

**Model:** *Sp.:* Have you ever been to Kiev? (*last year*) → *St.:* Yes, I have. I **was there last year**.

1. Have you seen her today? (*just a moment ago*)
2. Has Pete returned from Sochi? (*last week*)
3. Has it rained here lately? (*a few hours ago*)
4. Have you watched TV today? (*in the afternoon*)
5. Has Tom done his lessons? (*in the morning*)
6. Has Ann tried to find this book? (*last week*)
7. Have they shown you the new lab? (*yesterday*)
8. Have the engineer achieved good results? (*last month*)

**V. Прослушайте информацию о вчерашнем рабочем дне Николая. Уточните время совершения каждого действия:**

**Model 1:** *Sp.: Nick got up early. → St.: What time did he get up?*

1. Nick got dressed. 2. Nick had breakfast with his mother. 3. Nick left for college. 4. Nick took bus 94. 5. Nick went to a lecture by Professor Sporov. 6. Nick worked in the lab. 7. Nick came home in time for supper. 8. Nick played chess with his friend. 9. Nick went to bed rather late.

**VI. Скажите, кто выполняет (выполнял) указанные действия:**

**Model 1:** *Sp.: Who knows it? he → St.: He does.*

**Model 2:** *Sp.: Who knew it? → St.: He did.*

**Model 3:** *Sp.: Who has shown it to you? (Mary) → St.: Mary has.*

1. Who helps you? (*my sister*) 2. Who has heard about that? (*nobody*) 3. Who joined them yesterday? (*a new student*) 4. Who felt bad? (*mother*) 5. Who has carried out that research? (*they*) 6. Who received many letters? (*we*) 7. Who has chosen that book? (*Tom*) 8. Who usually achieved good results? (*Mary*) 9. Who woke up early in the morning? (*the children*) 10. Who has welcomed the visitors? (*Gerald*) 11. Who showed you the lab yesterday? (*the engineer*) 12. Who needs help? (*that boy*)

**VII. Прослушайте два раза следующий диалог. Будьте готовы ответить на аналогичные вопросы преподавателя в аудитории:**

**Teacher:** What did I give you for homework?

**Student:** We had to prepare Unit 6 and to do Laboratory Work 6.

**Teacher:** Did you have to do any exercises?

**Student:** Yes, we did. We had to do some exercises orally and in writing.

## LABORATORY WORK 10

**I. Прослушайте диалог и обратите внимание на употребление простого будущего времени в речи:**

- What time are you going to get up tomorrow morning?
- I shall probably get up very early. Then I shall get dressed and have breakfast at 6.30.
- Will you leave the house immediately after breakfast?
- No, I shall not. It will take me some time to get ready to leave.

II. Выразите ту же самую мысль, используя простое будущее время:

Model 1: *Sp.*: I am going to wait for her. → *St.*: I shall wait for her.

Model 2: *Sp.*: He is going to wait for her, too. → *St.*: He will wait for her, too.

1. I am going to prepare Unit 10 tonight. 2. Kate is going to help her mother with the supper. 3. We are going to stay with them all day long. 4. Pete is going to leave the house very early next morning. 5. It is going to rain again. 6. They are going to ring Jane in half an hour. 7. We are going to finish our work soon. 8. He is going to get home late at night.

III. Ответьте на вопросы диктора. Скажите, что вы (или кто-то другой) выполните эти действия. Обратите внимание на то, как произносятся сокращенные формы:

*I'll* [aɪl], *he'll* [hi:l], *she'll* [ʃi:l], *we'll* [wi:l], *you'll* [ju:l]

Model 1: *Sp.*: Will you go to college tomorrow? → *St.*: Yes, I shall. I'll go to college tomorrow,

Model 2: *Sp.*: Will he go there, too? → *St.*: Yes, he will. He'll go there, too.

1. Will you start at once? 2. Will he return in an hour? 3. Will he give an answer in some minutes? 4. Will Kate come again in the evening? 5. Shall I see you here next Monday? 6. Will you do it the day after tomorrow? 7. Will Pete prepare this experiment this week? 8. Shall we get home on time?

IV. Дайте краткие и полные отрицательные ответы. Обратите внимание на то, как произносятся сокращенные отрицательные формы глаголов:

*shan't* [ʃɑnt], *won't* [wount]

Model 1: *Sp.*: Will you go to college on Sunday? → *St.*: No, I shan't. I'll not go to college on Sunday.

Model 2: *Sp.*: Will he go there on Sunday? → *St.*: No, he won't. He'll not go there on Sunday.

1. Will you have a break at 10 o'clock? 2. Will you study French next year? 3. Will Pete have holidays in a week? 4. Will they meet you at the station tomorrow evening? 5. Shall we stay at college till 10? 6. Will they give you this picture? 7. Will Kate wait for the children? 8. Shall we go home at once?

V. Прослушайте предложения. Уточните время перечисляемых действий:

**Model:** *Sp.:* We are going to meet Nick at the station next Sunday. → *St.:* What time will you meet Nick at the station next Sunday?

1. I am going to get home early in the evening. 2. I am going to prepare for my English class. 3. Tom is going to visit me later. 4. We are going to watch TV at night. 5. We are going to ring Nick. 6. Nick is going to join us tonight.

**VI. Слушайте и запоминайте:**

We'll skip it over/We'll skip sentence 3/We'll skip to page 110/We'll skip to the foot of the page.

**VII. Прочитайте за диктором следующие интернациональные слова из текста ЮА. Постарайтесь понять их значение:**

course, mausoleum, project, revolutionary, composer, monument, guest, ballet, congress, chance, drama, palace

**LABORATORY WORK 11**

**I. Читайте за диктором следующие предложения, в которых глагол *shall* выражает предложение совершить действие:**

Shall I clean the blackboard? Shall I write down the date? Shall I give in the paper? Shall I collect the exercise-books? Shall I turn on the light? Shall I start reading? Shall I translate? Shall I repeat? Shall I carry on? Shall I read it all over again?

**II. Прослушайте следующие высказывания и предложите вашу помощь:**

**Model:** *Sp.:* I can't do this work myself. (*help*) → *St.:* Shall I help you?

1. It's dark. I can't read. (*turn on the light*) 2. I don't know where the post-office is. (*take you there*) 3. Some new film is on TV now. (*turn on the TV set*) 4. He's late as usual. (*ring him up*) 5. We're going to be late. (*take a taxi*) 6. It's very close in the room. (*open the window*) 7. I haven't got the text-book. (*give you mine*) 8. I have no time enough to do it today. (*do it for you*)

**III. Ответьте на вопросы диктора и скажите, что действие произойдет в будущем, в другое время. Обратите внимание на произношение сокращенных отрицательных форм глаголов:**

*shall not* = *shan't* [ʃənt]; *will not* = *won't* [wəunt]

**Model:** *Sp.:* Will you take exams in spring? (*summer*) → *St.:* No, I shan't. I shall take exams in summer.



1. Will you study chemistry in the third year? (*the second year*)
2. Will he go to university after school? (*a technical school*)
3. Will they have a vacation in autumn? (*winter*)
4. Will your brother visit you this month? (*in two months*)
5. Will you do shopping in the morning? (*the afternoon*)
6. Will Boris take a plane to get to Novosibirsk? (*a train*)
7. Will you do these exercises in the English Laboratory? (*at home*)
8. Will your friends wait for you at home? (*at the cinema*)

IV. Скажите, что и в будущем указанные действия не будут выполнены:

Model: Sp.: We never go there. And tomorrow? →  
St.: We shan't go there either.

1. He never rings us. And on Sunday?
2. They haven't come here lately. And the day after tomorrow?
3. It doesn't take him much time to get here. And next time?
4. Ann didn't come on time yesterday. And on Monday?
5. Pete isn't doing anything now. And in an hour?
6. They never write letters to us. And next month?
7. She didn't give an answer yesterday. And today?

V. Скажите, что перечисленные действия могут иметь место только при наличии определенных условий. Используйте одно из двух предъявленных предложений в качестве условия:

Model: Sp.: I shall get his telephone number. I shall ring him. → St.: I shall ring him if I get his telephone number.

1. They will be ready. We shall join them.
2. He will get back early. He will ring you.
3. We shall have a vac. We shall leave for the Crimea.
4. He will come to college. She will speak to him.
5. He will finish reading the book. He will give the book to you.
6. I shall go to the library. I shall get the book for you.
7. He will finish his business here. He will leave for Kiev.
8. We shall be prepared. We shall take exams.

VI. Укажите время выполнения действия:

Model: Sp.: You haven't bought the morning newspapers yet. (*to go out*) → St.: I'll buy them when I go out.

1. You haven't seen him yet. (*to go to my office*)
2. She has not bought this book yet. (*to do shopping*)
3. You haven't done shopping yet. (*to be not busy*)
4. He hasn't written the letter yet. (*to know their address*)
5. You haven't rung him yet. (*to learn his telephone number*)
6. They haven't cleaned the flat yet. (*to get a vacuum cleaner*)
7. He hasn't read this book

yet. (*to get it out of the library*) 8. She hasn't reserved a place in a hotel yet. (*to come to Moscow*)

VII. Прочитайте за диктором следующие интернациональные слова из текста 11А. Постарайтесь понять их значение:

distance, port, total, separate, final, finance, financial, fashionable

## LABORATORY WORK 12

I. Прослушайте диалог. Обратите внимание на употребление в простом будущем времени глаголов, выражающих модальное значение:

— Will you be able to go into the country with us tomorrow morning?

— I'm afraid I shan't. I'll have to wait for a friend of mine coming to Moscow for the holiday. But if he comes early enough we'll be able to join you.

II. Скажите, что вы: 1) сможете выполнить указанные действия в будущем:

Model 1: Sp.: You can't do it now. (*later*). → St.: But I'll be able to do it later.

1. You can't see them today. (*tomorrow morning*) 2. They can't go home at once. (*in a few minutes*) 3. Ann can't do shopping now. (*in the afternoon*) 4. You can't buy a new TV set this month. (*at the end of the year*)

2) можете выполнить эти действия сейчас, а позже не сможете:

Model 2: Sp.: You can do it now. → St.: Yes, I can, but I shan't be able to do it later.

5. You can go with me now. (*at night*) 6. You can use this text-book today. (*tomorrow*) 7. They can help her at the moment. (*in an hour*) 8. We can play chess with them now. (*late at night*)

III. В ответ на слова диктора о том, что в данный момент нет необходимости выполнить какое-то действие, скажите, что это действие будет необходимо выполнить в будущем:

Model: Sp.: You needn't do it now. (*tomorrow*) → St.: But I'll have to do it tomorrow.

1. You needn't go there today. (*the day after tomorrow*) 2. She needn't do shopping this week. (*next week*) 3. They needn't change the flat this year. (*in some years*) 4. You needn't ring him in the morning. (*tonight*) 5. She needn't visit her parents this week. (*next week*) 6. I needn't buy new shoes this month. (*in a month*) 7. Tom needn't help his brother

today. (*tomorrow afternoon*) 8. We needn't clean the flat tonight. (*in a day or two*)

IV. Прослушайте предложения. Спросите: а) сможет ли указанное лицо выполнить данное действие в будущем!

Model 1: Sp.: John can't go with us now. (*later*) → St.:  
Will he be able to go with us later?

1. They can't buy a new TV set this year. (*in two years*)
2. He can't write this letter now. (*in the afternoon*)
3. She can't clean the flat today. (*tomorrow*)
4. We can't finish the work now. (*in two hours*)

б) должно ли указанное лицо выполнить данное действие в будущем:

Model 2: Sp.: They can't study now. (*tonight*) → St.:  
Will they have to study tonight?

5. She needn't do these exercises today. (*tomorrow*)
6. Pete needn't translate the text at the moment. (*next morning*)
7. We needn't learn all these new words now. (*before the class*)
8. Tom needn't leave for college now. (*in half an hour*)

V. Переведите на английский язык:

Model 1: Sp.: Я не знаю, пойдет ли он туда (когда он пойдет туда). → St.: I don't know if he'll go there. (*when he'll go there*).

1. Я не знаю, буду ли я делать это. 2. Я не знаю, смогу ли я помочь вам. 3. Я не знаю, когда он вернется. 4. Он не знает, напишут ли они ему письмо. 5. Он не знает, сможет ли он закончить работу раньше. 6. Он не знает, когда он увидит их. 7. Я не уверен, услышат ли они об этом. 8. Я не уверен, должен ли он будет приехать сюда.

VI. Ответьте на вопросы диктора по образцу:

Model 1: Sp.: What do we call a thing that we often use? →  
St.: We call it **usable**.

*What do we call . . .*

water that we drink; fruit that we can eat; subject that we can understand well; a flat that gives you comfort; weather that often changes; problems that we can easily solve.

VII. Прочитайте за диктором следующие интернациональные слова из текста 12А. Постарайтесь понять их значение:

Prime Minister; Premier; Parliament; Ministry; Chancellor; procedure; monarchy; deputy; Conservatives; Liberals; Opposition; principle offices; limit

## LABORATORY WORK 13

I. 1) Прослушайте следующий диалог. Обратите внимание на употребление времен группы Continuous. 2) Читайте диалог за дикторами:

- Hello, Kate, that's Mike speaking. What about going to the cinema tonight?
- Oh, no, thank you. I'm preparing to give a talk at our physics seminar.
- But you were doing just the same when I rang you yesterday.
- I'm afraid I'll be doing it all day long tomorrow, too. You know that's my first talk at our seminar!
- Good luck to you then. I'll ring you the day after tomorrow. Good-bye!

II. Ответьте утвердительно на вопросы диктора. Скажите, что в указанный момент действие все еще продолжалось:

Model: Sp.: Was she reading the book when you came?→  
St.: Yes, she was. She was still reading the book when I came.

1. Was Mary standing at the bus-stop when her friends joined her? 2. Were they listening in to the news when they heard the telephone call? 3. Was Kate preparing for the seminar when Mike rang her? 4. Was he studying at college when he was offered a post-graduate training? 5. Were you having a vac when you were told the news? 6. Were they still carrying out the experiment when their professor came? 7. Were you watching television when your friends came to see you? 8. Was he resting after work when his sister arrived?

III. Ответьте отрицательно на вопросы диктора. Скажите, что в указанный момент в прошлом совершалось другое действие:

Model: Sp.: Were they talking the whole evening? (*study*)  
→ St.: No, they weren't talking, they were studying the whole evening.

1. Were the girls doing shopping at 6? (*cook supper*) 2. Was Mary cleaning her flat in the afternoon yesterday? (*work at her office*) 3. Was Boris getting up at the moment you came? (*stay in bed*) 4. Were the children doing lessons at 3 yesterday? (*leave school*) 5. Were you studying in the English lab after classes yesterday? (*work in the physics lab*) 6. Was she waiting for them from 3 till 5 yesterday? (*prepare to give a talk at a seminar*) 7. Were you staying at college all the time yesterday? (*solve maths problems at home*) 8. Was he preparing for classes all day long yesterday? (*play chess with his friends*)

**IV. Уточните, когда происходили упомянутые действия:**

**Model:** *Sp.: When did you meet her? (walk across the street) → St.: I met her when she was walking across the street.*

1. When did you make these photos? (*travel in the Crimea*)
2. When did you buy this book? (*do shopping last afternoon*)
3. When did he learn German so well? (*live in Germany*)
4. When did she meet them? (*stay with her friends*)
5. When did you hear that story? (*visit them*)
6. When did Pete find that book? (*search for books in the library*)
7. When did he get that new device? (*buy equipment for his lab*)
8. When did Mary see that film? (*have a vac*)

**V. Ответьте на вопросы диктора утвердительно или отрицательно по образцу:**

**Model 1:** *Sp.: Will you be waiting for us at six? (yes) → St.: Yes, I shall. I'll be waiting for you at six.*

**Model 2:** *Sp.: Will you be studying in the library after classes? (no) → St.: No, I shan't. I shall not be studying in the library after classes.*

1. Will you be going home at 5? (*no*)
2. Will he be watching TV at night? (*yes*)
3. Will they be working in the lab all day long tomorrow? (*no*)
4. Will you be having dinner when we arrive? (*yes*)
5. Will she be cleaning the flat when we come? (*no*)
6. Will you be meeting them at the station in the afternoon? (*yes*)
7. Will the children be going to bed when we return? (*no*)
8. Will Kate be preparing for her talk at a seminar tomorrow? (*no*)

**VI. Прослушайте информацию и скажите, что в указанное время в будущем вы (или другие лица) будете выполнять другие действия:**

**Model:** *Sp.: I shall be packing at 6 tomorrow. (I—get home) → St.: At this time I'll be getting home.*

1. I shall be getting up at 8 tomorrow. (*I—go by the underground*)
2. He will be sitting at a lecture at 9 tomorrow. (*they—leave for Kiev*)
3. Mother will be cleaning the flat next afternoon. (*Kate—cook dinner*)
4. Father will be working at his factory at night. (*we—prepare for classes*)
5. I'll be waiting for my friends in the midday. (*I—do shopping*)
6. The children will be walking home after school. (*their parents—meet them*)
7. A friend of mine will be studying philosophy for five years. (*I—study physics and mathematics*)
8. His wife will be teaching at school. (*he—work at a Research Institute*)

## VII. Слушайте и запоминайте!

Will you read the passage, please. Take your time. (Don't hurry) Carry on. (Go on/Come on, read) Read up to the end of the page (paragraph). That will do. Thank you. You read fairly well today.

## LABORATORY WORK 14

I. 1) Прослушайте диалог. Обратите внимание на употребление времен группы Perfect. 2) Читайте диалог за дикторами:

- Hello, Petel Have you had your scientific seminar yet?
- Yes, we have. It was finished at 2. It's Kate's talk you are interested in, aren't you? I was late and didn't hear her talk. She had already given it when I came.
- And where is your group now?
- Some of our students are busy in the physical lab. But I don't think you'll have to wait long. They'll have finished their work by 5.

II. Скажите, что к указанному моменту в прошлом данные действия уже произошли:

Model: Sp.: Have you done the work yet? (*by the time you returned*) → St.: I had done it *by the time you returned*.

1. Have you rung him yet? (*before you came*) 2. Have they finished the experiment yet? (*by 6 o'clock yesterday*) 3. Have you read this book yet? (*by the end of the week*) 4. Have you ever been to Leningrad? (*before I came to study here*). 5. Have you got this reference-book yet? (*by Friday*) 6. Have you got an answer yet? (*by the end of the last week*) 7. Has the train left yet? (*by the time I arrived*) 8. Have you seen them off? (*before you rang her*)

III. Объясните, почему вы (или другие лица) не выполнили указанные действия:

Model: Sp. Why didn't you come to the party? (*to finish my work by that time*) → St.: Because I hadn't finished my work *by that time*.

1. Why didn't you return the book yesterday? (*to read it by yesterday*) 2. Why didn't he translate the article yesterday? (*to find it by yesterday*) 3. Why didn't she give a talk on Monday? (*to prepare it by Monday*) 4. Why didn't you call the taxi earlier? (*to pack the things by that time*) 5. Why didn't you meet him at the station? (*he—to write about it*)

before) 6. Why didn't they go to the country on Saturday? (to finish their work by that time) 7. Why didn't Kate do shopping? (to clean the flat by 8) 8. Why didn't they come last night? (to find our address)

IV. Ответьте на вопросы диктора утвердительно или отрицательно по образцу:

Model 1: Sp.: Will you have cooked dinner by 5 o'clock? (yes) → St.: Yes, I shall. I'll have cooked it by this time.

Model 2: Sp.: Will you have cleaned the flat when I come? (no) → St.: No, I shan't. I shan't have cleaned the flat by this time.

1. Will you have spoken to him before we come? (yes)  
2. Will she have helped her mother to clean the house by 4 o'clock? (yes) 3. Will they have finished the conference by Tuesday? (no) 4. Will you have seen them off before we arrive? (yes) 5. Will you have found her address by 2 o'clock? (no) 6. Will they have got a new flat by September? (no) 7. Will he have written that letter by Sunday? (yes) 8. Will they have given you any job by summer? (no)

V. Скажите, что к указанному моменту в будущем данные действия будут завершены:

Model 1: Sp.: Will you be still working when we come? (finish the work) → St.: Oh, no, I'll have finished my work by that time.

1. Will you still be having dinner if I ring you at 2? (have dinner) 2. Will the children be still walking if I come at 3? (get home) 3. Will the Sedovs still be living here if I come in summer? (change the flat) 4. Will Kate still be doing shopping when we get home? (return home) 5. Will he still be a student next March? (graduate) 6. Will you still be watching TV at 10 o'clock tomorrow? (turn it off) 7. Will you still be working if I come at 5? (do everything) 8. Will your sister still be at home at 10 next Sunday? (leave for the country)

VI. Слушайте и запоминайте:

Your reading is rather poor today. You'll have to practice reading at home. I'm going to call on you for the reading next time. Don't waste our time again.

## LABORATORY WORK 15

I. Прослушайте диалог. Обратите внимание на согласование времен в речи:

- Where does Alex live, Helen?
- I don't know, Mother. He didn't say where he lived.
- What is his job, Helen?
- Oh, Mum, I've no idea. I didn't ask him what his job was.
- Do you know how old he is, anyhow?
- No, Mummy, not exactly. I didn't ask him how old he was. I see he is young.

II. Ответьте на вопросы диктора по образцу. Не забывайте о правиле согласования времен:

Model 1: Sp.: Does this man live in Moscow? → St.:  
**He said he lived in Moscow.**

1. Does this boy study? 2. Does he study at college?  
3. Does he like his college? 4. Does he go to college every day?  
5. Does he carry out any research?

Model 2: Sp.: Did this man live in Moscow? (Has this man ever lived in Moscow?) → St.: **He said he had lived in Moscow.**

6. Has this boy ever been to the Far East? 7. Did he go there with his friends? 8. Did he work in a construction team there? 9. Did he enjoy his work? 10. Has he ever carried out any research work? 11. Has he achieved good results?

Model 3: Sp.: Will he go there? → St.: **He said he would go there.**

12. Will he go to the Far East again? 13. Will he work there? 14. Will he join any construction team there? 15. Will he return at the end of August? 16. Will his studies begin on the 1st of September?

III. Скажите, что вам неизвестно точно, когда будет выполнено указанное действие, и что вы знаете о нем только то, что вам о нем сообщили:

Model 1: Sp.: When will he be here? (*in May*) → St.: **He said he would be here in May.**

1. When will she prepare it? (*soon*) 2. When will they return? (*in half an hour*) 3. When will Ann help them? (*after classes*) 4. When will Tom leave school? (*in a year*) 5. When will they get an answer? (*in a few days*) 6. When will they leave for holidays? (*in July*) 7. When will he meet them? (*on Saturday*) 8. When will they come to Moscow? (*in two days*)



**IV. Ответьте на вопросы диктора по образцу:**

**Model:** *Sp.:* How old is this man? → *St.:* **I don't know. He didn't say how old he was.**

1. Who is this man? 2. How old is he? 3. What is his job? 4. What is his wife's name? 5. What are they doing in Kiev? 6. How long are they going to stay there? 7. When will they leave for home? 8. What places of interest have they visited there? 9. Who have they met there?

**V. Поставьте вопрос к выделенной части предложения:**

**Model:** *Sp.:* I doubted **he would come.** → *St.:* What did you doubt?

1. **Where this process starts** is not clear. 2. The problem is **how to explain it to our TV watchers.** 3. I doubted **they would return on time.** 4. They know **where he lives.** 5. He never explained to me **how he did it.** 6. **Who comes first** is not so important. 7. The question is **whether they know the news.** 8. **Whether they are friendly** is not clear.

**VI. Слушайте и запоминайте:**

Is the translation correct? Have you all got that/the same? Who has a different translation? Correct your mistakes now. That's right. That's much better. What does this word mean? What's the Russian for . . . ? Who knows the Russian for . . . ?

**LABORATORY WORK 16**

**I. Внимательно выслушайте вопрос диктора и скажите, что вы поняли его вопрос. Не забывайте о согласовании времен в своем ответе:**

**Model:** *Sp.:* Are you an engineer? → *St.:* **You asked me if I was an engineer.**

1. Are you a first-year student? 2. Are you at a technical college? 3. Do you want to be a physicist? 4. Are you going to work in the field of cybernetics? 5. Have you got a brother? 6. Is your brother a graduate from Moscow University? 7. Is physics his special field too? 8. Does your brother live in Moscow?

**II. Выразите сомнение (или уверенность) по поводу информации диктора:**

**Model:** *Sp.:* He came here. (*doubt/sure*) → *St.:* **I doubted/was sure he would come.**

1. He came in your absence. (*sure*) 2. They saw him off. (*doubt*) 3. They were in minority. (*doubt*) 4. We were in ma-

majority. (*sure*) 5. She was offered a post-graduate training, (*sure*) 6. They moved to Kiev, (*doubt*) 7. They achieved high labour productivity. (*sure*) 8. He set us a good example. (*sure*)

III. Ответьте на вопрос диктора по образцу. Скажите, что этот вопрос был (не был) для вас ясным (важным). Помните о необходимости согласования времен:

Model: Sp.: How do they do it? (*not clear*) → St.: It was not clear how they did it.

1. How do they define this value? (*not clear*) 2. What is their work concerned with? (*clear*) 3. Why have they increased the length of the pipe? (*not important*) 4. Why did they cut this pipe? (*not clear*) 5. What did they fill this pipe with? (*important to know*) 6. How do they link the ends of the pipes? (*clear*) 7. Why do they depend so much on this man? (*not clear*) 8. Why have they elected him their chairman? (*not important*)

IV. Переведите на английский язык:

Model: 1. С кем вы разговариваете? → Who are you talking with?

2. Чего вы ждете? → What are you waiting for?

1. С кем он разговаривает? 2. Кого они ждут? 3. На что вы смотрите? 4. Что она слушает? 5. С кем они стоят? 6. Чем вы пишете? 7. На кого вы смотрите? 8. С кем вы идете в кино? 9. С кем гуляет ребенок?

V. Поставьте вопрос к выделенным членам предложения, используя вопросительные слова в скобках:

Model: Sp.: Canada remained the dominion until 1967. (*how long*) → St.: How long did Canada remain the dominion?

1. The area of the USSR is 22.4 million km<sup>2</sup>. (*how large*)  
2. Since the Socialist Revolution of 1917 our country became an independent socialist state. (*when*) 3. Our basic law is the Constitution of the USSR adopted in 1977. (*what*)  
4. The Constitution of the USSR defines the structure and the method of national government. (*what*) 5. The Constitution lists the rights of a man. (*whose*) 6. The Supreme Soviet (Верховный Совет) of the USSR is elected for a term of 5 years. (*for how long*)

VI. Задайте вопрос диктору:

*Ask him:* what he does; what his job is; if he is at a technical college; when he left school; if he is fond of studies; if he went to school in Moscow; if he had worked before he went to college; what subjects he is interested in most of all; when he is going to leave college; what field of science he is interested in; what his future speciality is concerned with

#### VII. Слушайте и запоминайте:

1. Listen to a story. Be prepared to tell the story in your own words/to speak on it.

2. Read the passage. Make an English/Russian summary of the passage. (Summarize the contents of the passage in English/Russian). You may use your outline while speaking on the passage.

## II. SPECIAL COURSE

### LABORATORY WORK 17

#### I. Читайте за диктором:

[i:]—deal, a'ppeal, a'gree, piece, con'venient, com'plete  
[e] — i'very, 'seven, 'second, 'energy, 'measure, 'decimal, di'mension, possess (pə'zes), several, metal, accuracy

[æ] — mass, carry, value, candle, ampere ['æmpɪə], alloy, standard ['stændərd], accurate, scratch

[ɑ:] — chance, de'mand, e'xample, yard

[ʌ] — number, multiple, multiply ['mʌltɪplaɪ]; other, a'nother, a'mong

[ɒ] — 'logical, 'volume, a'dopt, quantity, ve'locity, mo-'notonous

[aɪ] — either, di'vide, de'fine, de'rive

II. Читайте следующие слова. Сравните ваше чтение с ключом (чтением диктора). Повторите правильный вариант:

#### 1) ударение падает на первый слог:

almost, urgent, equal, decimal, density, quality, quantity, alloy, volume, multiple, multiply, purpose, unit, standard, energy, origin

#### 2) ударение падает на второй слог:

correct, resist, complete, completion, convenience, convert, concern, involve, beyond, velocity, original

III. Читайте за диктором следующие предложения, обращая внимание на употребление глагола *to deal* (заниматься, иметь дело с) в различных временах страдательного залога;

1. This problem is generally dealt with in the first year. 2. This problem is being dealt with now. 3. This problem was dealt with at the last seminar. 4. This problem has just been dealt with by them. 5. The problem had already been dealt with before we came to the seminar. 6. The problem will be dealt with later. 7. They said the problem would be dealt with later.

**IV. Ответьте на вопросы утвердительно, употребляя глагол в страдательном залоге:**

**Model:** *Sp.:* Did they speak about the plan? → *St.:* Yes, it was spoken about.

1. Did they check the results? 2. Did they compare the results? 3. Did you solve that problem? 4. Did he find the mistake? 5. Did she turn off the light? 6. Did they send for the engineer? 7. Did they listen to the speaker? 8. Did they agree upon the time of the exam?

**V. Ответьте на вопросы отрицательно. Скажите, что указанное действие уже выполнено:**

**Model:** *Sp.:* Is this road still narrow? (*widen*) → *St.:* No, it has already been widened.

1. Is this problem still unsolved? (*solve*) 2. Is their work still unfinished? (*finish*) 3. Is the value still unchanged? (*increase*) 4. Are these rooms still not occupied? (*occupy*) 5. Is the letter still not written? (*send to her*) 6. Are the results still the same? (*improve*) 7. Are the shops still open? (*close*) 8. Is the TV set still on? (*turn off*)

**VI. Ответьте на вопросы, используя слова в скобках. Не упоминайте субъект действия:**

**Model:** *Sp.:* When will he read this article? (*next Monday*) → *St.:* It will be read next Monday.

1. Where will he read this article? (*in the library*) 2. When will you check the results? (*tomorrow*) 3. Where shall we buy this text-book? (*in the nearest bookshop*) 4. When will they receive this letter? (*in some days*) 5. Where will they make this experiment? (*in Laboratory 7*) 6. When shall we pack the things? (*tonight*) 7. Where will he give the lecture? (*in Lecture Theatre 401*) 8. When will you finish the research? (*next month*)

**VII. Измените данные предложения по образцу, сделав центром высказывания объект действия. Субъект действия сохраните, употребив предлог *by*:**

**Model:** *Sp.:* They do (did/have done/will do) nothing. →  
*St.:* Nothing is (was/has been/will be) done by them.

1. She will write nothing. 2. They have seen everything.  
3. He offers help. 4. We received a lot of letters. 5. You have solved the problem. 6. I saw off the delegation. 7. We shall finish the experiment on time.

**VIII. Слушайте и запоминайте:**

to take part in a seminar/conference; to give a (short) talk (a talk — выступление, доклад) at a seminar on . . . ; to talk on/to speak on . . . ; to deal with a problem.

**LABORATORY WORK 18**

**I. Читайте за диктором:**

[i:] — meaning, con'vene, con'venient, com'plete, com'pletion

[ɪ] — con'sider, 'synonym, 'interval, figure ['figə], 'indicate, di'vision, po'sition, 'different, 'difference, des'cription, 'definition

[el] — 'segment, ins'pection, 'reference, ins'tead, geo'metrical

[æ] — e'xamine, 'happen, graph, 'value, 'average, 'calculate, rec'tangle, 'standpoint, me'chanics, dy'namics, kin'e'matics ['kaɪnɪ'mætiks], 'altitude

[æ:] — branch, fast, e'xample, vast, rather

[ɔ:] — cause, 'almost, 'alter, ball

[ɒ] — 'object, plot, 'product, 'constant, in'volve, ge'ometry

[ə:] — term, re'fer, con'cern

**II. Прочитайте за диктором слова**

**1. с ударением на первом слоге:**

interest, figure, synonym, indicate, different, difference, segment, specify, reference, average, calculate, standpoint, altitude, object, product, constant, primarily, uniform

**2. с ударением на втором слоге:**

consider, division, instead, geometry, examine, rectangle, mechanics, dynamics, involve, refer, concern, equation, precise, divide

**III. Прослушайте предложения. Обратите внимание на употребление инфинитива в нулевой позиции в функциях подлежащего и обстоятельства:**

**Model 1: To obtain**  
(что?) these  
results is im-  
portant.

1. To translate such texts takes much time.
2. To make this experiment is necessary.
3. To understand this problem is not easy.
4. To complete this work is not difficult.
5. To know physics well is necessary.
6. To obtain an accurate result is important.

**Model 2: To obtain**  
(для чего?)  
these results  
we must work  
hard.

1. To translate such texts we use special dictionaries.
2. To make this experiment we came earlier.
3. To understand this problem you must learn the theory.
4. To complete this work they will stay in the laboratory.
5. To know physics well you must work hard.
6. To obtain an accurate result you must know these values.

**IV. На вопрос диктора ответьте, что выполнить перечисленные действия легко/просто/трудно/невозможно и т. д.:**

**Model: Sp.:** Can you complete the measurement? (*not so easy*) → **St.:** To complete them is not so easy.

1. Can you carry out the experiment on time? (*impossible*)
2. Can you deal with such a device? (*rather difficult*)
3. Can you check the results? (*simple enough*)
4. Can you multiply these values? (*so easy*)
5. Can you weigh this object? (*not so difficult*)
6. Can you provide the necessary apparatus? (*easy enough*)

**V. Прослушайте предложения. Выразите ту же мысль, используя инфинитив в функции обстоятельства цели в нулевой позиции:**

**Model: Sp.:** They followed a new method in order to improve the results. → **St.:** To improve the results they followed a new method.

1. She stayed in the lab till 8 in order to complete the experiment.
2. You must change the temperature in order to obtain this alloy.
3. He read a lot of articles in order to write the paper.
4. We made a lot of experiments in order to solve the problem.
5. He must increase the speed to get to town

till it's night. 6. They worked hard in order to get more accurate results.

#### VI. Переведите на русский язык:

Model 1: *Sp.*: Чтобы вывести эту величину, мы . . . →  
*St.*: To derive this value, we . . .

1. Чтобы получить этот результат, они . . . 2. Чтобы решить эту задачу, мы . . . 3. Чтобы сделать это хорошо, он . . . 4. Чтобы преобразовать эти величины, вы . . . 5. Чтобы измерить плотность, они . . . 6. Чтобы исключить это, я . . . 7. Чтобы взвесить этот брусок, он . . . 8. Чтобы обеспечить их информацией, мы . . .

VII. Прослушайте предложения. Выразите ту же мысль, используя инфинитив в функции определения:

Model 1: *Sp.*: The man **who must work** with you is here. →  
*St.*: The man **to work** with you is here.

Model 2: *Sp.*: This is the article **which must be read** by you. → *St.*: This is the article **to be read** by you.

1. The engineer who must join the group is in the next room. 2. The students who will deal with this problem will come at five. 3. The instrument which will measure the density is very accurate. 4. The data which must be obtained is important. 5. The method which will be followed is quite new. 6. The problem which must be solved is a very difficult one.

#### VIII. Переведите на английский язык:

Model: *Sp.*: Вот доклад, который необходимо прослушать. → *St.*: Here is the paper **to be listened to**.

1. Вот книга, которую необходимо прочитать. 2. Вот текст, который необходимо перевести. 3. Вот результаты, которые необходимо проверить. 4. Вот работа, которую необходимо завершить. 5. Вот метод, которому необходимо следовать. 6. Вот брусок, который необходимо взвесить. 7. Вот человек, с которым необходимо поговорить. 8. Вот вопрос, который необходимо рассмотреть.

IX. Читайте диалог синхронно с дикторами. Будьте готовы воспроизвести его в аудитории:

A.: What are you doing here?

B.: I'm preparing to give a talk at our physics seminar.

A.: What problem are you going to deal with?

B.: I'll speak on different systems of measurement.

## LABORATORY WORK 19

### I. Читайте за диктором:

[æ] — 'family, 'gravity, 'planet, a'ttract, a'ttraction, me'chanics, 'masses, 'massive, 'attribute, 'magnitude, e'xact, e'xactly, 'balance, 'travel, di'ameter, geo'graphical, 'altitude

[ə:] — term, e'xert, in'verse, in'versely, con'cern, con'vert, dis'perse, re'fer, re'verse

[e] — 'every, 'separate, res'pect, res'pective, res'pectively, ex'tent

[ɑ:] — part, particle, path

[ɔ:] — fall, force, form

[eɪ] — great, ex'plain, lay, laid, straight, weight

### II. Прочитайте следующие слова

#### 1) с ударением на первом слоге:

gravity, massive, attribute, magnitude, altitude, region, zero, publish, separate, satellite, uniform, symmetry

#### 2) с ударением на втором слоге:

extent, account, apply, assume, explain, exert, reduce, response, responsible, inverse, inversely, respect, respective, attract, attraction, development, dimensional, essentially, symmetrical

III. Переведите следующие предложения на русский язык. Обратите внимание на перевод инфинитива в составе именного сказуемого и в модальном значении:

Model 1: to be + Infinitive (именное сказуемое)

Our aim is to prove the results.

Наша цель (состоит в том, чтобы) подтвердить результаты.

1. Our plan is to improve the device.

2. One of the methods is to use this equation.

3. His idea is to repeat the experiment more accurately.

4. Their task was to complete the measurements.

Model 2: to be + Infinitive (модальное значение)

We are to prove the results.

Мы должны подтвердить результаты.

1. This method is to improve it.

2. We are to use this method.

3. He is to repeat the experiment more accurately.

4. They were to complete the measurements.



5. Our idea is to obtain the most precise data.
6. His plan was to go on with the research.

5. We are to obtain the most precise data.
6. He was to go on with the research.

IV. Скажите, что сейчас нет необходимости совершать данное действие, что его надо совершить в указанное время в будущем:

Model: Sp.: Must I do the work now? (*tomorrow*) → St.: You **don't have to do it now, you will have to do it tomorrow.**

1. Must I join them at present? (*in an hour*) 2. Must we consider this problem today? (*at the next seminar*) 3. Must the engineer check the results now? (*upon completion of the experiment*) 4. Must they measure the length now? (*a little later*) 5. Must Ann read her paper today? (*the day after tomorrow*) 6. Must we increase the temperature at present? (*much later*)

V. Ответьте на вопросы диктора отрицательно. Скажите, что действие еще не выполнено, но его следует выполнить:

Model 1: Sp.: Hasn't Pete bought the book? → St.: **No, he hasn't yet. But he should buy it at once.**

1. Hasn't Ann written the answer? 2. Haven't you spoken to the engineer? 3. Haven't they specified the temperature? 4. Hasn't the assistant changed the instruments?

Model 2: Sp.: Hasn't Pete bought the book? → St.: **No, he hasn't yet. But he ought to buy it at once.**

5. Hasn't the student completed the experiment? 6. Haven't you studied this phenomenon? 7. Haven't you increased the length? 8. Hasn't the assistant checked the results?

VI. Выразите предположение при помощи глагола *must*:

Model 1: Sp.: It is possible that they are working now. → St.: They **must be working now.**

1. It is possible that they are completing the experiment at present. 2. It is possible that he is solving the same problem at the moment. 3. It is possible that she is trying to specify the temperature now. 4. It is possible that they are checking the results at present.

Model 2: Sp.: I suppose they have carried out that work. → St.: They **must have carried out the work.**

5. I suppose they have completed the experiment. 6. We suppose he has solved the problem. 7. I suppose she has tried

to specify the temperature. 8. We suppose they have tested the results.

**VII. Переведите на английский язык:**

**Model 1:** *Sp.:* Вам следовало бы сделать это лучше. →  
*St.:* You should have done it better.

1. Вам следовало бы рассмотреть . . . 2. Ему следовало бы назвать . . . 3. Ей следовало бы измерить . . . 4. Им следовало бы определить . . .

**Model 2:** *Sp.:* Вам следовало бы сделать это лучше. →  
*St.:* You ought to have done it better.

5. Вам следовало бы согласиться на . . . 6. Нам следовало бы описать . . . 7. Ему следовало бы обеспечить . . . 8. Им следовало бы взвесить . . .

**Model 3:** *Sp.:* Вы могли бы сделать это лучше. →  
*St.:* You could have done it better.

9. Вы могли бы изменить свои планы. 10. Они могли бы завершить работу вовремя. 11. Она могла бы получить лучшие результаты. 12. Мы могли бы помочь вам тогда.

**VIII. Слушайте и запоминайте:**

a paper; a report; to report on; to write a paper; to read a paper; to present a paper; the subject of a paper

**LABORATORY WORK 20**

**I. Читайте за диктором:**

[i:] — 'treat, 'frequent, 'brief, 'piece, con'venient, 'green, 'region

[ɪ] — 'visible, e'mit, o'iginal, con'sider, 'indicate, 'constitute, a'ppreciable, a'ppreciably, a'ppreciate

[e] — possess, 'edge, 'evidence, 'reference, res'pect, ins'tead, 'bread

[ʌ] — 'substance, 'touch, 'multiple, e'nough, 'publish, 'intro'duction

[ɔ:] — 'source, 'cause, be'cause

[ə:] 'term, e'xert, in'verse, 'curve

**II. Прочитайте следующие слова**

**1) с ударением на первом слоге:**

luminous, concept, optical, certain, property, shadow, mention, frequent, object, measurable, instance, solid, quality, qualitatively, constitute

2) на втором слогe:

intensity, describe, phenomena, formation, familiar, appear, emit, reflect, because, amount, direction, restrict

3) на третьем слогe:

incandescent, luminescent, fluorescent, definition, introduction

III. Прослушайте следующие пары предложений. Обратите внимание на употребление простого и сложного дополнений:

1. He wants to make it himself. He wants **me to make it myself**. 2. He thinks to complete his research soon. He thinks **us to complete** the research soon. 3. I want to explain this phenomenon myself. I want **you to explain** this phenomenon. 4. I wish to take part in the work. I wish **everybody to take part** in the work. 5. We expect the results. We expect **the results to be** accurate. 6. They will consider this problem. They consider **this problem to be** of importance.

IV. Упростите сложноподчиненное предложение, заменив его простым. Употребите конструкцию Complex Object:

Model 1: Sp.: They believed that that value would change.  
→ St.: They believe that value to change.

1. They supposed that the group would obtain good results. 2. They found that the paper was very interesting. 3. We expected that he would come soon. 4. She did not know that they would join us. 5. He supposed that they would go on with the experiment. 6. I believed that they would consider the phenomenon.

Model 2: Sp.: I felt that somebody looked at me. → St.:  
I felt somebody look at me.

7. We heard that somebody opened the door. 8. He heard how somebody came into the room. 9. He heard that somebody called his name. 10. I often saw how the students worked in the library. 11. She heard how something fell to the ground. 12. We felt that somebody followed us.

V. Ответьте на вопросы. Скажите, что вы видели/слышали/наблюдали другое действие:

Model: Sp.: I heard the engineers discuss that problem, and you? (*speak about the new plan*) → St.:  
I heard them speak about the new plan.

1. I watched the students make experiments, and you? (*to have a meeting*) 2. I saw the man leave the room, and you?

(*speak to his professor*) 3. We watched the engineers test the new machine, and you? (*unpack the machine*) 4. We heard Pete speak about his research, and you? (*explain his last experiment*) 5. I saw the girls come into the lab, and you? (*work in the library*) 6. I heard our professor explain that new method, and you? (*to speak over the telephone*) 7. We watched the students complete the work, and you? (*to discuss the results*) 8. I heard Ann prove the accuracy of her results, and you? (*to speak about her last experiment*)

**VI. Ответьте отрицательно на вопросы упр. V:**

**Model:** *Sp.:* I heard the engineers discuss the problem, and you? → *St.:* I didn't hear them discuss the problem.

**VII. Выразите сомнение по поводу услышанного, используя наречие really:**

**Model:** *Sp.:* He made the students check the results. → *St.:* Did he really make them check the results?

1. He made his friends believe him. 2. The teacher made Alex do the work again. 3. The examiner let Pete re-sit the exam. 4. They made Ann answer the letter herself. 5. Mother let me buy the book. 6. The lab assistant let us stay in the lab till six. 7. We let the boys change the plans. 8. They made the engineer join the group at once.

**VIII. Читайте диалог синхронно с дикторами. Будьте готовы воспроизвести его в аудитории:**

*A.:* By the way, have you written your paper yet?

*B.:* Not yet. My scientific adviser wants me to present it in two days. Still I have to do a lot.

*A.:* That's a pity. You should have started the work earlier.

scientific adviser — научный руководитель

## LABORATORY WORK 21

**I. Читайте за диктором:**

[eɪ] — 'regular, inter'sect, to'gether, geo'metrical, 'heavy, 'heavily

[eɪ] — 'straight, ray, 'basic, equ'ation, ex'plain, cōn'tain, lay

[æ] — 'angle, rec'tangle, 'happen, 'alloy, 'accurate, 'candle, 'shadow, i'magine, i'maginary, re'fraction, 'arrow

[ʌ] — touch, 'substance, e'nough, a'bove

[u:] — rule, prove, im'prove, disa'pprove, i'lluminate  
[ju:] — re'duce, de'fuse, a'ssume, intro'duce

## II. Прочитайте следующие слова

### 1) с ударением на первом слоге:

quality, quantity, mirror, incident, regular, quantitatively,  
qualitatively, heavily, alloy, accurate, shadow, arrow,  
substance

### 2) с ударением на втором слоге:

refraction, diffuse, imagine, imaginary, distort, together,  
explain, contain, refraction, enough, above

## III. Прослушайте диалог. Обратите внимание на употребление Complex Subject:

- Why are you here? You are supposed to be in Leningrad.
- Yes, I was to go there with my group. But I fell ill and had to stay in bed for some days.
- Are you still going to join the group one of these days?
- Yes, I am sure to leave for Leningrad in a day or two.

Читайте диалог за дикторами.

## IV. Переведите на русский язык, обратите внимание на перевод инфинитива в составе Complex Subject:

Model 1: Sp.: They seem to work at the same problem. →  
St.: По-видимому, они **работают** над одной и той же проблемой.

Model 2: Sp.: They seem to have worked at the same problem. St.: По-видимому, они **работали** над одной и той же проблемой.

1. They seem to have applied that new method. 2. He seems to be interested in the problem. 3. The experiment appears to have been successful. 4. These values appear to be interrelated. 5. This information appears to be published soon. 6. The engineers seem to have completed the experiment. 7. This equation seems to be true. 8. They appear to be familiar with our work.

## V. Трансформируйте сложные предложения в простые при помощи конструкции Complex Subject:

Model 1: Sp.: It is supposed that the group will complete the research soon. → St.: **The group is supposed to complete** the research soon.

1. It is found that these values are interrelated. 2. It is expected that they will obtain good results. 3. It is known

that these two engineers are working at the same problem.  
4. It is reported that they will join our group.

**Model 2:** *Sp.:* It is said that some new method will be applied in their research. → *St.:* Some new method is said to be applied in their research.

5. It is assumed that the device will be used in our experiment. 6. It is supposed that the temperature will be reduced. 7. It is believed that their report will be discussed. 8. It is expected that this equation will be treated later.

**VI. Ответьте на вопросы диктора утвердительно. Скажите, что указанные действия вероятно (или непременно) произойдут:**

**Model 1:** *Sp.:* Will this student become an experimenter? (*to be likely*) → *St.:* Yes, he is likely to become an experimenter.

1. Will they study these results? (*to be likely*) 2. Will the engineer go on with the experiment? (*to be sure*) 3. Will the values change? (*to be certain*) 4. Will the temperature fall? (*to be likely*)

**Model 2:** *Sp.:* Will this method be applied in the research? (*to be likely*) → *St.:* Yes, it is likely to be applied in the research.

5. Will this plan be changed? (*to be likely*) 6. Will the temperature be specified? (*to be certain*) 7. Will the results be tested? (*to be sure*) 8. Will the values be defined accurately? (*to be likely*)

**VII. Ответьте на вопросы диктора отрицательно. Скажите, что указанные действия по-видимому не произойдут (или непохоже, что они произойдут):**

**Model 1:** *Sp.:* Will this student become an experimenter? → *St.:* No, he doesn't seem to become an experimenter.

1. Will they study these properties? 2. Will the engineer go on with the experiment? 3. Will the values change? 4. Will the temperature fall?

**Model 2:** *Sp.:* Will this method be applied in the research? → *St.:* No, it is unlikely to be applied.

5. Will the plan be changed? 6. Will the temperature be specified? 7. Will the results be tested? 8. Will the curves be plotted accurately?

**VIII. Переведите на английский язык, используя предлагаемые образцы:**

**Model 1:** Оказалось, что они знают об этом. → **They proved to know about it.**

1. Оказалось, что они рассматривают этот вопрос. 2. Оказалось, что они приходят туда очень часто. 3. Оказалось, что она ссылается на нашу работу. 4. Оказалось, что их работа очень интересна.

**Model 2:** Известно, что этот прибор широко используется. → **This device is said to be widely used.**

5. Известно, что этот метод широко применяется. 6. Известно, что эти свойства тщательно изучаются. 7. Известно, что эти результаты тщательно проверяются. 8. Известно, что температура легко определяется.

**Model 3:** Известно, что этот прибор широко использовался. → **This device is said to have been widely used.**

9. Известно, что этот метод широко применялся. 10. Известно, что эти свойства тщательно изучались. 11. Известно, что эти результаты тщательно проверялись. 12. Известно, что температура легко определялась.

## **LABORATORY WORK 22**

**I. Читайте за диктором:**

[ɪ:] — weak, screen, reason, 'reasonable, prestige [pres'ti:ʒ]

[ɪ] — pre'dict, 'similar, i'nitial, i'nitially, 'constitute

[iə] — 'theory, 'merely, 'zero, 'hero, a'ppear

[e] — 'evidence, hence, 'several, e'lectron, su'ggest, ac-  
'cept, 'century, 'comple'mentary

[ei] — way, con'tainer, be'have, be'haviour, 'favour

[æ] — lack, 'shadow, a'bandon, re'al-ity, 'adequate

[ou] — 'photon, opa'que [ou'peɪk]

**II. Прочитайте следующие слова**

**1) с ударением на первом слоге:**

reason, reasonable, similar, theory, merely, zero, evi-  
dence, several, century, favour, shadow, adequate, photon

**2) с ударением на втором слоге:**

prestige, predict, initial, initially, discover, appear,  
electron, suggest, accept, behave, behaviour, abandon, re-  
ality, opaque

III. Читайте за диктором следующие предложения. Обратите внимание на употребление инфинитива в разных функциях:

1. These are the two problems **to be considered**. 2. **To consider** these problems will take a lot of time. 3. We **ought to have considered** them much earlier. 4. **To consider** these problems we must know the theory well. 5. We **are to consider** them seriously. 6. My plan **is to consider** the most difficult problem first. 7. I'll **have to consider** it in detail. 8. You **should help me to consider** it.

IV. Переведите на английский язык:

Model 1: Доказано, что температура увеличивается →  
The temperature **is proved to increase**. Оказалось, что температура увеличивается →  
The temperature **proved to increase**.

1. Доказано, что скорость изменяется. Оказалось, что скорость изменяется. 2. Доказано, что источник испускает видимый свет. Оказалось, что источник испускает видимый свет. 3. Доказано, что вещества имеют подобные свойства. Оказалось, что вещества имеют подобные свойства.

Model 2: Доказано, что температура увеличилась →  
The temperature **is proved to have increased**.  
Оказалось, что температура увеличилась →  
The temperature **proved to have increased**.

4. Доказано, что скорость изменилась. Оказалось, что скорость изменилась. 5. Доказано, что источник испускал видимый свет. Оказалось, что источник испускал видимый свет. 6. Доказано, что вещества имели подобные свойства. Оказалось, что вещества имели подобные свойства.

V. Прослушайте следующие предложения. Согласитесь с диктором и подчеркните в ответе, что указанные лица первыми выполнили перечисленные действия:

Model 1: Sp.: She helped them with their research. →  
St.: Yes, she **was the first to help** them with their research.

1. They applied the new method. 2. This scientist accounted for that new method. 3. Newton laid down the law of gravitation. 4. Newton explained the structure of the Universe. 5. She described that strange phenomenon in detail. 6. He proved the data obtained. 7. They referred to that work. 8. They considered the results accurately.

VI. Ответьте на вопросы диктора, используя слова в скобках для того, чтобы высказать свое отношение к данному положению:



**Model:** *Sp.:* Will this value change? (*suppose*) → *St.:*  
I suppose it to change.

1. Will the group obtain good results? (*believe*) 2. Will they go on with the experiment? (*expect*) 3. Will the new engineer join our group? (*want*) 4. Will she consider this phenomenon? (*suppose*) 5. Will this theory account for this effect? (*expect*) 6. Will they specify the temperature? (*believe*) 7. Will the speaker mention that research? (*expect*) 8. Will Ann explain this? (*must make*)

**VII. Выразите согласие с диктором:**

**Model:** *Sp.:* We can't cover this distance. It is too great.  
→ *St.:* Yes, it's really too great to be covered.

1. I can't solve this problem. It is too difficult. 2. We can't measure the velocity of light in simple units. It is too great. 3. We can't use this device. It is too inaccurate. 4. We can't understand this text. It is too difficult. 5. We can't specify the temperature. It is too high. 6. We can't use this substance. It is too rough.

**VIII. Слушайте и запоминайте:**

to hold a conference; to hold a students' scientific conference; to hold a faculty students' scientific conference; to devote a conference to . . .

## LABORATORY WORK 23

**I. Читайте за диктором:**

[i:] — in'crease, de'crease, screen, 'frequency, procedure  
[prə'si:dʒə], piece, 'region

[ɪ] — 'silver, pre'dict, exhibit [ɪg'zɪbɪt]

[iə] — a'ppear, ɪnter'fere, ɪnter'ference

[e] — 'evidence, 'ready, 'readily, bread, spread

[ɔ] — spot, 'obvious

[əʊ] — low, show, be'llow

[aʊ] — now, how, a'llow

[æ] — band, 'pattern, di'ffraction

[aɪə] — 'violet

**II. Прочитайте следующие слова**

1) с ударением на первом слоге:

frequency, region, evidence, ready, readily, obvious, ordinary, pattern, violet

2) с ударением на втором слоге:

increase, decrease, procedure, prestige, predict, exhibit, appear, because, below, allow, diffraction

3) в которых имеется два ударения:

interfere, interference, monochromatic, equidistant

III. Прослушайте следующие пары предложений. Обратите внимание на употребление причастия I и причастия II в функции определения:

1. The engineer **demonstrating** the new device is from our lab. The device **demonstrated** by him was tested last week. 2. The paper **considering** these new methods is very interesting. The methods **considered** will be used in our research. 3. The plant **providing** that equipment is in Kiev. The equipment **provided** by this plant is of high quality. 4. The group **following** the new method has achieved good results. The method **followed** by them is being discussed.

IV. Упростите предложения, заменив определительные придаточные предложения причастными оборотами:

Model 1: *Sp.*: The man who (that) heads the group is a well-known scientist. → *St.*: The man **heading** the group is a well-known scientist.

1. The students who are carrying out experiments are third-year students. 2. Professor Green that lectures on the problem will be here tomorrow. 3. The result which confirms his prediction is very important.

Model 2: *Sp.*: The problem which (that) is being dealt with here is interesting. → *St.*: The problem **being dealt with here** is interesting.

4. The method which is being discussed is very original. 5. The equation that is being proved is rather difficult. 6. The devices which are being used must be tested again.

Model 3: *Sp.*: The work which was done by them is of great importance → *St.*: The work **done by them** is of great importance.

7. The method which is followed by us gives good results. 8. A scientific study of properties which were predicted by the scientist began much later. 9. Experiments which are carried out in the third year are very interesting. 10. The results which have been received must be considered accurately.

V. Переведите на русский язык. Обратите внимание на перевод причастий *involved*, *concerned* («данный, рассматриваемый, о котором идет речь») в функции определения:

1. The method involved was quite new. 2. The equation involved will be considered later. 3. The work concerned deals with a new branch of physics. 4. The phenomenon involved is difficult to explain. 5. We have to consider all the factors involved. 6. The quantities involved in our study are interrelated.

**VI. Переведите на английский язык следующие усеченные предложения:**

**Model:** *Sp.:* Выполненные эксперименты были ... →

*St.:* The experiments carried out were ...

*Sp.:* Группа, выполняющая эксперимент, будет ... → *St.:* The group carrying out the experiment will be ...

1. Показанный фильм был ... 2. Сделанные доклады подтвердили ... 3. Результаты, подтверждающие это, будут ... 4. Полученные результаты помогут ... 5. Студенты, работающие над этой проблемой, знают ... 6. Ученые, придерживающиеся (follow) этого метода, считают ... 7. Уравнение, доказанное им, было ... 8. Группа, использующая этот прибор, должна ...

**VII. Читайте диалог синхронно с дикторами. Будьте готовы воспроизвести его в аудитории:**

*A.:* When is the faculty students' conference to be held?

*B.:* It is expected to be held next month.

*A.:* What problems is it devoted to?

*B.:* It is devoted to one of the problems of cosmic research.

I'm going to present a paper dealing with this problem.

## LABORATORY WORK 24

**I. Читайте за диктором:**

[aɪ] — 'hydrogen, 'cycle, 'cyclic, eye, a'pply, pre'cise, 'primarily, pro'vide, de'rive

[jə] — 'series, a'ppear, 'merely, 'interfere, 'interference

[eɪ] — 'vapor, range, a'rrange, 'grating, be'haviour, 'favour, e'nable, main'tain, ob'tain

**II. Прочитайте следующие слова**

1) с ударением на первом слоге:

hydrogen, cyclic, primarily, series, merely

2) с ударением на втором слоге:

apply, arrange, behaviour, enable, maintain, obtain

**III. Прослушайте следующие предложения. Обратите внимание на употребление причастия в функции обстоятельства:**

1. **Writing** the paper I had to read a lot of articles. 2. **Having written** the paper I showed it to my professor. 3. **Solving** the problem we met with certain difficulties. 4. **Having solved** the problem we discussed it in detail. 5. **While preparing** for the experiment they checked all the devices. 6. **Having checked** the devices they started the experiment. 7. **When completing** the research they got some significant results. 8. **Having completed** the research they wrote an interesting article.

**IV. Объедините два предложения в одно при помощи причастного оборота:**

**Model 1:** *Sp.:* He **was asked** about it. He **gave** a detailed answer. → *St.:* **Being asked** about it he **gave** a detailed answer.

1. We were shown a new device. We asked a lot of questions. 2. She was given an interesting book. She started to read it. 3. I was told about his research. I got interested in it. 4. The device was checked. It was used in the experiment.

**Model 2:** *Sp.:* He **had been asked** about it. He **gave** a detailed answer. → *St.:* **Having been asked** about it he **gave** a detailed answer.

5. We had been shown a new device. We asked a lot of questions. 6. She had been given an interesting book. She started to read it. 7. I had been told about his research. I got interested in it. 8. The device had been checked. It was used in the experiment.

**V. Переведите на русский язык следующие усеченные предложения, обращая внимание на перевод причастия I и причастия II:**

1. Solving that equation they found . . . 2. Having used the metric system they could . . . 3. While defining weight we must . . . 4. Keeping temperature at 100° we have to . . . 5. Having divided length by time we found . . . 6. When dealing with such accurate measurements we must . . . 7. Being heated this substance changes its . . . 8. Having been informed about it we decided . . . 9. While being checked the device showed . . . 10. When being studied the properties proved to be much alike. 11. If started on time the research will be completed in May. 12. When discovered the planet was called . . . 13. Unless provided with accurate data the scientists can't . . .

**VI. Замените придаточные предложения времени, причины или условия независимым причастным оборотом:**

**Model 1:** *Sp.: As the measurements were made accurately, we got ... → St.: The measurements being made accurately, we got ...*

1. As the relation between these phenomena is known, we can ... 2. As the frequency changes with time the data may be ... 3. As the quantity was too small, the experiment did not show ...

**Model 2:** *Sp.: After the devices had been checked, they could start the experiment. → St.: The devices having been checked, they could start the experiment.*

4. After the distance had been measured we could define ... 5. After that phenomenon had been studied, they tried to find ... 6. After the temperature had been defined it was not difficult to ...

**Model 3:** *Sp.: If all other conditions are unchanged the temperature will be ... → St.: All other conditions being unchanged, the temperature will be ...*

7. If the distance is known it will be possible ... 8. If the speed increases the distance will be covered ... 9. If the distance is divided by time we shall get ...

**VII. Переведите на русский язык следующие усеченные предложения. Обратите внимание на перевод независимого причастного оборота. Помните, что в начале предложения независимый причастный оборот переводится придаточным предложением**

**1) времени (русские союзы когда, после того, как):**

**Model:** *Sp.: Radioactivity having been discovered, it became clear ... → St.: После того, как была открыта радиоактивность, стало ясно ...*

1. The frequency having been changed, we had to ... 2. The area having been measured, we could find ... 3. The necessary data having been got, the work could be stopped.

**2) причины (союз так как):**

**Model:** *Sp.: The distance being unknown, it was difficult ... → St.: Так как расстояние было неизвестно, было трудно ...*

1. The temperature and pressure being specified, all the conditions will be . . . 2. These laws being absolutely correct, it is better . . . 3. The temperature changing, It seems difficult to . . .

3) условия (союз *если*):

Model: *Sp.*: This relation being changed, we shall get . . . *St.*: Если это отношение изменится, мы получим . . .

1. The equipment being provided, we shall begin . . .  
2. The measurements being made with high accuracy, we shall obtain ... 3. All other conditions being unchanged, the frequency will remain ...

## LABORATORY WORK 25

I. Читайте за диктором:

[ɔ] — dot, drop, 'droplet, 'object, 'quantity, in'volve, approximate, response, 'obvious

[ɔ:] — eause, eXhaust, exhaustive, dis'tort, draw, 'order, 'ordinary, broad

[ou] — suppose, slow, glow, whole, 'sodium

[ə:] — external, in'ternal, con'firm, disperse, e'xert, curve, re'fer, con'vert, e'merge

II. Прочитайте следующие слова:

1) с ударением на первом слоге:

droplet, object, alloy, sodium, quantity, obviously, ordinary, altitude, region, medium, media, rainbow, multiple, evidence, strikingly

2) с ударением на втором слоге:

involve, approximately, response, exhaust, exhaustive, distort, suppose, associate, external, internal, confirm, dispose, exert, refer, convert, resemble, transparent, combine, emerge, oblique, obliquely

3) с ударением на третьем слоге:

undergo, incidental, incidentally, indirectly, introduction, luminescence, incandescent, intersect, complementary, equidistant, interference

III. Прослушайте следующие предложения, обращая внимание на употребление причастия I и причастия II в составе сложного дополнения:

1. I heard him giving a lecture on that problem. 2. I saw the machine prepared for operation. 3. You can watch the temperature rising. 4. They heard him talking to his scientific adviser. 5. We found everything prepared for the experiment. 6. You may watch them starting the work.

IV. Согласитесь с диктором. Скажите, что вы видите, что указанные действия выполняются:

Model: Sp.: She's writing. → St.: Yes, I can see her writing.

1. She's checking the device. 2. They are starting the work. 3. The temperature is rising. 4. The students are preparing for the experiment. 5. Ann is giving a talk. 6. The machine is operating normally.

V. Объедините следующие пары предложений в одно при помощи сложного дополнения:

Model: Sp.: I have just seen Nick. He was working in the lab. → St.: I have just seen him working in the lab.

1. We watched the students. They were preparing for the experiment. 2. You can hear the girls. They are talking in the next room. 3. They saw us. We were checking the device. 4. You can feel it. The temperature is increasing. 5. They saw the engineer. He was starting the work. 6. We found the boys. They were completing the measurements.

VI. Ответьте на вопросы отрицательно. Скажите, что указанные действия были выполнены не вами, а другими лицами:

Model: Sp.: Did you check the results? → St.: No, I had them checked.

1. Did you define the temperature? 2. Did you test the new device? 3. Did you improve its operation? 4. Did you solve that problem? 5. Did you complete the work? 6. Did you weigh the substance? 7. Did you arrange everything for the experiment? 8. Did you change the voltage?

VII. Переведите на русский язык следующие усеченные предложения, обращая внимание на перевод независимого причастного оборота с союзом *with*. Помните, что в начале предложения он переводится придаточным предложением, вводимым союзами *теперь, когда, при условии, когда, так как*, а в конце — самостоятельным предложением с союзами *при этом, и, а*:

1. With this equation solved, we can define . . . 2. With the temperature changing, the substance will exhibit . . . 3. With airplane flying higher and faster, we can . . . 4. With

the formula given, we may . . . 5. With almost all nations using the metric system, we are able . . . 6. . . ., with salt and water being formed. 7. . . ., with the measurements carried out so accurately.

## LABORATORY WORK 26

### I. Читайте за диктором:

[æ] — 'valve, 'vacuum, 'carry, 'carrier, fact, a'ttract, a'ttraction, me'tallic, 'acted, 'cathode, ca'pacitor, po'lar-ity, 'value

[ə:] — term, 'terminal, circuit ['sə:kit], con'vert, re'verse, 'perfect, 'thermal, 'thermi'onic, 'certain, 'surface

[e] — net, 'negative, 'never, 'neverthe'less, 'metal, e'lec-tron, effect, e'lectric, 'energy, per'centage, e'ject, mo'lecular

[el] — es'cape, 'expla'nation, weigh, main'tain

### II. Прочитайте следующие слова

#### 1) с ударением на первом слоге:

current, vacuum, alternating, metal, cathode, voltage, value, rectify, terminal, circuit, perfect, thermal, certain, filament, negative, energy, molecule

#### 2) с ударением на втором слоге:

attract, attraction, metallic, capacitor, polarity, convert, reverse, electron, electric, effect, percentage, eject, molec-ular, escape, enclose, across

### III. Читайте следующие предложения за диктором. Обратите внимание на употребление герундия в функции подлежащего:

1. Repeating the operation is not necessary. 2. Comparing such values will help us in calculations. 3. Making use of these properties will help us. 4. Measuring these lengths will be very difficult. 5. Heating changed the properties of the substance. 6. Finding a correct answer took a lot of time.

### IV. Прослушайте следующие пары усеченных предложений. Сравните употребление форм герундия и причастия в начале предложений:

**Model 1:** Measuring the temperature we used . . . (*Participle*) Измеряя температуру, мы использо-вали . . .

**Model 2:** Measuring the temperature will help us . . . (*Gerund*) Измерение температуры поможет нам . . .



1. **Increasing** the length we change . . . **Increasing** length is necessary in such cases.

2. **Escaping** from the cathode, the electrons flow . . . **Escaping** will not begin till we heat the cathode.

3. **Using** a strong magnet we direct the particles to . . . **Using** a magnet is not necessary here.

4. **Heating** this alloy we can . . . **Heating** increases the speed of molecules.

5. **Solving** this problem he discovered . . . **Solving** such problems helps us greatly.

6. **Calculating** the speed we must . . . **Calculating** the speed will not give us . . .

V. После глаголов, выражающих начало, конец или продолжение действия (*begin, start, stop* и др.), употребляется герундий. Попросите диктора начать, продолжить или прекратить указанное действие:

Model: Sp.: It's time to work. (*begin*) → St.: It's time to work. Will you **begin working**, please?

1. It's necessary to measure the distance. (*begin*) 2. It's not important to do it now. (*stop*) 3. It's better to heat the water a little more. (*carry on*) 4. You must check the device. (*begin*) 5. You needn't calculate these data. (*stop*) 6. It's better to define it at once. (*start*) 7. You will have time to read the article to the end. (*go on*) 8. There is only one more experiment to make. (*carry on*)

VI. Переведите на русский язык следующие усеченные предложения:

Model: Sp.: In measuring (= measuring) length . . . → St.: Измеряя длину . . .

Sp.: On (upon, after) measuring (= having measured) length . . . → St.: Измерив длину . . .

1. In making such experiments we should remember . . .  
2. In following this theory you should know . . . 3. On finishing the work he will have to do . . . 4. Upon obtaining the final results you should write down . . . 5. In giving such data we tried to . . . 6. Calculating the necessary data we should . . . 7. In making use of such equipment you should have known that . . . 8. Upon receiving this equipment you can provide . . .

VII. Переведите на английский язык, используя герундий с предлогами *in* или *on*:

1) определяя частоту . . . ; 2) улучшая работу . . . ;  
3) вычислив эту величину . . . ; 4) ускоряя частицу . . . ;

- 5) измерив температуру . . . ; 6) проверив точность . . . ;  
7) решая эту задачу . . . ; 8) измерив поле . . .

**VIII. Слушайте и запоминайте:**

an article/a paper — статья; the title of an article/a paper; the author of an article/a paper; to refer to an article/a paper; the article/the paper is concerned with . . .

**LABORATORY WORK 27**

**I. Читайте за диктором:**

[e] — co|nnect, con|dense, e|ffect, e|lectrode, e|lectron, su|ppress, re|pel, pre|vent

[æ:] — terms, |circuit, |purpose, con|cerned, learn, in|ter-nal

[ɪ] — |input, a|ddition, a|dditional, re|sist, re|sistance, o|riginal

[i:] — in|crease, in|deed, field, im|pedance

**II. Прочитайте следующие слова**

**1) с ударением на первом слоге:**

input, output, circuit, average, value, certain, positive, negative, cathode, secondary

**2) с ударением на втором слоге:**

effect, control, avoid, addition(al), electron, electrode, reduce, capacitance, according, condenser, approximate, internal, resistance, impedance, desire, desirable, attract, suppress, repel, prevent, bombard, bombardment, potential

**III. Выразите ту же мысль, используя вместо причастия**

**а) герундий с предлогом in:**

**Model 1:** *Sp.:* Preparing for the seminar I read a lot of articles. → *St.:* In preparing for the seminar I read a lot of articles.

1. Measuring this length we define . . . 2. Repeating the process we must . . . 3. Obtaining such results you can . . .  
4. Following this method we must . . .

**б) герундий с предлогами on, upon, after:**

**Model 2:** *Sp.:* Having read the report I . . . (on) → *St.:* On reading the report I . . .

1. Having found the value he . . . (on) 2. Having measured all the lengths it is possible . . . (after) 3. Having solved

this problem we can . . . (*upon*) 4. Having examined the device he can . . . (*on*)

в) герундий с предлогами *in* или *on*:

Model 3: *Sp.*: Using this device we rectify . . . → *St.*:  
In using this device we rectify . . .  
*Sp.*: On using this device we rectify . . . → *St.*:  
Having used this device we rectify . . .

1. Heating the cathode to a high temperature we . . .
2. Increasing the voltage to a high potential you will . . .
3. Having changed the potential you can . . . 4. Having escaped from the cathode the electrons flow to . . .

IV. Переведите на английский язык следующие усеченные предложения, используя герундий с предлогами *in* или *on*:

1. Измеряя расстояние, мы должны знать . . . 2. Измерив расстояние, мы можем . . . 3. Увеличивая скорость, мы знали . . . 4. Увеличив скорость, мы получили . . . 5. Определив температуру, мы получили . . . 6. Определяя температуру, мы полагаем . . . 7. Предсказав величину, мы полагали . . . 8. Предсказывая величину, мы должны были знать . . .

V. Объедините два предложения в одно, используя формы герундия:

Model 1: *Sp.*: He works at this problem. It is known to us. → *St.*: His working at this problem is known to us.

Model 2: *Sp.*: He has made the experiment. It is important → *St.*: His having made the experiment is important.

1. She makes the calculations regularly. It helps us in our work. 2. He had stopped making experiment. It was unknown to us. 3. They have obtained some new data. It is very important. 4. They follow this method. It is known to us. 5. We had asked for help. It surprised him greatly. 6. He had worked at the theory of magnetism. It helped him much. 7. He knows physics so badly. It surprises us. 8. They have repeated this operation many times. It will improve the results.

VI. Переведите на русский язык. Обратите внимание на перевод герундия в функции подлежащего с предшествующим местоимением:

Model: *Sp.*: His having obtained good results didn't surprise us. → *St.*: То, что он получил хорошие результаты, не удивило нас,

1. His having made such a discovery interested everyone. 2. Our having finished all the experimental part on time did not surprise them. 3. Their having obtained the new equipment will help them greatly. 4. His being invited to the conference was not known to us. 5. His having taken part in the conference was reported in the press. 6. Our having obtained accurate data was very important.

VII. На вопрос диктора скажите, что данные действия не были выполнены, так как указанные лица возражали против их выполнения:

Model: Sp.: Why didn't you go there? (he) → St.: He objected to our going there.

1. Why didn't you help them? (they) 2. Why didn't you use this device? (she) 3. Why didn't he occupy this place? (they) 4. Why didn't he alter the voltage? (the head engineer) 5. Why didn't she join the group? (the head of the group) 6. Why didn't she test the devices? (they) 7. Why didn't they discuss the problem? (he) 8. Why didn't they compare the results? (I)

VIII. Читайте диалог синхронно с дикторами. Будьте готовы воспроизвести его в аудитории:

A.: Did you have to read a lot of articles while writing this paper?

B.: Yes, I did. I am going to refer to them.

A.: What is your paper concerned with?

B.: It's concerned with some new applications of lasers in medicine.

## LABORATORY WORK 28

I. Читайте за диктором следующие слова:

a) luck—lack; loss—less; lose—loss; less—loss; lock—lack

b) simple—sample—settle; decades—decides—designs; listened—listened—loosened; occur—prefer—refer; report—repeat—repell

в) own—one; bent—bend; move—lose; most—must; except—expect

II. Читайте следующие слова

1) с ударением на первом слоге:

magnet, magnetism, magnetized, ancient, iron, origin, evidence, demonstrate, doctrine, purpose, simplify, purely, suddenly, uniform, formalism

2) с ударением на втором слоге:

concerned, magnetic, attract, Chinese, behave, phenomena, conclude, effects, discovery, indeed, astonish, astonishment, analogous, produce, exact, exactly

III. Переведите на русский язык. Обратите внимание на перевод форм герундия:

1. The students' completing the experiment on time was very important. 2. Our aim is improving the results. 3. Electron escaping begins when the cathode is heated to a high temperature. 4. They have stopped discussing the problem. 5. I remember having been asked about it. 6. They have not studied his method of solving the problem yet. 7. A thermometer is an instrument for measuring temperature.

IV. Ответьте на вопросы диктора отрицательно. Скажите, что, по вашему мнению, данные действия выполнять не стоит (бесполезно):

Model: Sp.: Will you measure it again? (*no good*) →  
St.: No, I won't. It's no good measuring it again.

1. Will you reduce the temperature? (*no good*) 2. Will he repeat the experiment? (*useless*) 3. Will she write an article on this subject? (*no use*) 4. Will they discuss the problem in detail? (*no good*) 5. Will you test the devices again? (*useless*) 6. Will he ask them for help? (*no use*)

V. Переведите на русский язык. Обратите внимание на употребление герундия с прилагательными *worth* (*worth-while*):

1. It's worth discussing the problem in detail. 2. It's worth reading this paper. 3. It's worth repeating the experiment. 4. It's worth-while testing the devices before the experiment starts. 5. It's worth-while making these calculations again. 6. It's worth-while going to all his lectures on the subject.

VI. Попросите вашего собеседника, чтобы он прекратил выполнять следующие действия:

*Ask your friend not*

to read (**stop reading**); to make noise; to help them; to wait for them; to touch the device; to shake the liquid; to use your instruments; to occupy this place

VII. Переведите на английский язык:

Model 1: Sp.: Я не могу не пытаться сделать это, →  
St.: I cannot help trying to do it.

Я не могу не думать об этом/не приходить сюда/не говорить об этом/не написать об этом/не ответить на этот вопрос

Model 2: *Sp.*: Ему (не) удалось достать книгу. → *St.*: He (didn't succeed) succeeded in getting the book.

1. Мне удалось прочитать эту статью. 2. Нам удалось использовать эти данные. 3. Им удалось увеличить напряжение. 4. Ей удалось решить эту задачу. 5. Нам не удалось помочь им в этом. 6. Ему не удалось вычислить скорость.

**VIII. Прочитайте диалог синхронно с дикторами. Будьте готовы воспроизвести его в аудитории:**

*A.*: How many sections does the paper consist of?

*B.*: It consists of two sections. The first one deals with the experiment.

*A.*: And the second?

*B.*: The second one discusses the results and the possible ways of applying them in practice.

## LABORATORY WORK 29

### I. Читайте за диктором:

[e] — electric, ex<sup>1</sup>pence, res<sup>1</sup>pect, sug<sup>1</sup>gest, per<sup>1</sup>petual

[i:] — pre<sup>1</sup>cede, field, com<sup>1</sup>pletely

[ə:] — circular, ex<sup>1</sup>ternal, pre<sup>1</sup>fer, in<sup>1</sup>ternal, surface

[α] — bar, sample, charge, sharp

[aɪ] — sign, a<sup>1</sup>llign, die

[au] — doubt, outside, around, boundary

[u:] — loop, move, movement

### II. Читайте следующие слова

#### 1) с ударением на первом слоге:

in<sup>1</sup>side, si<sup>1</sup>milar, ci<sup>1</sup>rcular, su<sup>1</sup>rface, ad<sup>1</sup>ditive, ax<sup>1</sup>is, can<sup>1</sup>cel, ran<sup>1</sup>domly, ma<sup>1</sup>cro, ou<sup>1</sup>tside, bou<sup>1</sup>ndary, op<sup>1</sup>posite, so<sup>1</sup>lenoid, or<sup>1</sup>ient, or<sup>1</sup>bit, for<sup>1</sup>malism, ze<sup>1</sup>ro

#### 2) с ударением на втором слоге:

elec<sup>2</sup>tric, exp<sup>2</sup>ence, res<sup>2</sup>pect, sug<sup>2</sup>gest, per<sup>2</sup>petual, pre<sup>2</sup>cede, com<sup>2</sup>pletely, ex<sup>2</sup>ternal, pre<sup>2</sup>fer, in<sup>2</sup>ternal, ex<sup>2</sup>actly, per<sup>2</sup>haps, com<sup>2</sup>parison, al<sup>2</sup>ign, mys<sup>2</sup>terious, ma<sup>2</sup>terial, a<sup>2</sup>round, co<sup>2</sup>balt

#### 3) с ударением на третьем слоге:

si<sup>3</sup>milarity, cor<sup>3</sup>respond, op<sup>3</sup>position

III. Прослушайте следующие предложения. Обратите внимание на употребление форм Subjunctive:

1. It's suggested that the new engineer **should take part** in this research. 2. It's rather doubtful that he **should have** already **heard** about it. 3. It's necessary that he **be informed** about it as soon as possible. 4. I wish he **would agree** to work with us. 5. I wish he **were** in our research group. 6. It's very important that the work **should begin** this month.

IV. Ответьте на вопросы диктора. Скажите, что выполнение данного действия является очень важным, необходимым, желательным, сомнительным или невозможным:

Model: Sp.: Will they start the work at once? (*desirable*) -> St.: It's desirable that they **should start** it at once.

1. Will they test this device again? (*important*) 2. Will she increase the temperature gradually? (*necessary*) 3. Will he measure the distance accurately? (*essential*) 4. Will you complete the experiment on time? (*doubtful*) 5. Will the engineer make all the calculations himself? (*impossible*) 6. Will they heat the water a little? (*quite necessary*) 7. Shall we get the necessary information tomorrow? (*rather doubtful*) 8. Will they get the new equipment this month? (*very important*)

V. Прослушайте следующие предложения. Скажите, что сомнительно или невероятно, чтобы указанные действия уже совершились:

Model: Sp.: We have completed the experiment, (*doubtful*) -> St.: It's doubtful that you **should have completed** it.

1. We have measured all the lengths. (*doubtful*) 2. He has found the value. (*impossible*) 3. They have made the calculations. (*improbable*) 4. She has passed her end-of-term test. (*rather doubtful*) 5. We have got the new equipment. (*impossible*) 6. He has taken part in that conference. (*doubtful*) 7. They have left Tor London. (*improbable*) 8. She has got the most precise data. (*rather doubtful*)

VI. Согласитесь с диктором. В ответе используйте аналитическую форму сослагательного наклонения с глаголом *should*:

Model: Sp.: Does your professor demand that you attend lectures regularly? -> St.: Yes, he **demand**s that we **should attend** lectures regularly.

1. Does the engineer request that the devices be tested?  
2. Does the math teacher demand that all these problems

be solved? 3. Do they suggest that we take part in the discussion? 4. Do the students propose that the papers be presented later? 5. Did the teacher suggest that we follow that method? 6. Did the engineer demand that they make use of the new equipment? 7. Did the new assistant request that he be shown the laboratory? 8. Did the dean demand that we stay after lectures?

**VII. Прослушайте предложения. Скажите, что вам хотелось бы, чтобы указанное действие совершилось:**

**Model 1:** *Sp.:* I don't know about it. → *St.:* I wish you knew about it.

1. I don't speak English well. 2. We don't understand this equation. 3. He doesn't study well. 4. Ann doesn't help her brother.

**Model 2:** *Sp.:* He is not ready to answer. → *St.:* I wish he were ready to answer.

5. She is not interested in it. 6. The information is not precise. 7. The students are not in the lab. 8. I am not informed about it.

**VIII. Слушайте и запоминайте:**

a periodical/a scientific journal; to publish an article/a paper; to consult a reference book

### LABORATORY WORK 30

**I. Прочитайте следующие слова**

1) с ударением на первом слоге:

solid, even, radius, nucleus, radii, nuclei, estimate, designate, oxygen, average, uniformly, occupy, balance, volume, compact, therefore, relative, relatively

2) с ударением на втором слоге:

suppose, hypothesis, about, divisible, continue, consist, amount, particular, entirely, exactly, reside, account, distribute, throughout, arrangement, expect, except

**II. Прочитайте следующие предложения, выражающие побуждение совершить действие. На вопрос диктора ответьте по образцу, пояснив, какое именно действие вы предложили выполнить:**

**Model:** *St.:* Let's rest a little. *Sp.:* What did you say? → *St.:* I suggested that we should rest a little.

1. Let's solve the first equation. 2. Let's compare the results. 3. Let's look for the mistake. 4. Let's write down



the correct answer. 5. Let's discuss this article. 6. Let's translate the title. 7. Let's ask him to help us. 8. Let's stay at college till 6.

III. Ответьте на вопросы диктора. Скажите, что указанные действия потребовалось (или было предложено) выполнить:

Model: Sp.: Why have you come so early? (*suggest*) → St.: It was suggested that we should come so early.

1. Why have you returned? (*suggest*) 2. Why have they stopped the experiment? (*demand*) 3. Why has the engineer increased the temperature? (*propose*) 4. Why have they changed the plan? (*require*) 5. Why has he gone to hospital? (*demand*) 6. Why have you heated this substance? (*propose*) 7. Why has Ann spoken at the conference? (*require*) 8. Why has she chosen this subject for her paper? (*suggest*)

IV. Попросите не выполнять указанных действий. Сделайте это в более вежливой форме, чем в предложениях, которые прочитает диктор:

Model: Sp.: Don't call him up! → St.: I wish you wouldn't call him up.

1. Don't open the window! 2. Don't turn on the TV! 3. Don't make so much mistakes! 4. Don't waste our time! 5. Don't ask so many questions! 6. Don't take anything from that shelf! 7. Don't make so much noise! 8. Don't be late next time!

V. Переведите на английский язык следующие предложения, передающие просьбу:

Model: Sp.: Скажите мне, пожалуйста, который час? → St.: Would you tell me the time, please?

1. Читайте, пожалуйста. 2. Напишите это, пожалуйста. 3. Сделайте это упражнение, пожалуйста. 4. Помогите мне, пожалуйста. 5. Откройте дверь, пожалуйста. 6. Напишите число, пожалуйста. 7. Продолжайте читать, пожалуйста. 8. Садитесь на место, пожалуйста.

VI. Посоветуйте диктору выполнить упомянутые действия, с тем чтобы избежать нежелательных последствий:

Model: Sp.: If I don't write down the results I may forget them. → St.: Write down the results lest you should forget them.

1. If I don't work hard I may fail in maths. 2. If I don't take a taxi I may be late for the train. 3. If I don't ring

him he will wait for me long. 4. If I don't rest a little I may fall ill. 5. If I don't turn off the TV it will wake her up. 6. If I don't check the results I may get a wrong answer.

VII. Читайте диалог синхронно с дикторами. Будьте готовы воспроизвести его в аудитории:

A.: I would like to read the paper you referred to at the seminar yesterday.

B.: No doubt it's worth-while reading.

A.: Would you tell me the name of the author?

B.: I'm afraid I don't remember it. But I can tell you the title of the paper and the periodical it was published in.

---

no doubt — несомненно

### LABORATORY WORK 31

#### I. Прочитайте следующие слова

##### 1) с ударением на первом слоге:

negligible, nuclear, evident, evidently, forward, uniformly, neutralize, subject, occupy, scattering

##### 2) с ударением на втором слоге:

advance, deflect, distribute, supply, throughout, whereas, concerning, decay, (to) subject, predict

II. Прослушайте следующие предложения. Обратите внимание на употребление глагола *to provide* и союзов *provided, providing*:

1. They **provided** our laboratory with new and modern equipment. 2. The equipment **provided** will be used by this scientific group. 3. **Providing** we got accurate results we should continue the work. 4. **Provided** they helped us we should complete the experiment on time. 5. They seem **to be provided** with the latest information. 6. **Provided** one knows the velocity and energy it is possible to define the mass.

III. На вопрос диктора скажите, что вы выполнили бы указанное действие, если бы могли!

Model: Sp.: Why don't (doesn't) you (he) get this book? → St.: I (he) **should (would) get it if I (he) could.**

1. Why don't you test the results? 2. Why doesn't he complete the work? 3. Why don't you use this device? 4. Why doesn't he follow this method? 5. Why doesn't she change

the temperature? 6. Why don't they join the group? 7. Why doesn't he present his paper? 8. Why don't you repeat the experiment?

IV. Переведите на русский язык, обращая внимание на перевод глаголов в формах Subjunctive:

1. If we knew about it we should send her a letter. 2. If it were not so late you could go there. 3. If they had more time they would solve the problem. 4. If she understood it well she would not make so many mistakes. 5. If he thought better he would not say that. 6. If the device worked well the results would be better. 7. If the speed were increased we should get there earlier. 8. If the noise were detected it could be essentially reduced.

V. Измените в предложениях упр. IV форму глаголов в Subjunctive так, чтобы они выражали утерянную возможность совершения действия в прошлом:

Model: *Sp.*: If I got a letter from him, I should meet him at the station. → *St.*: If I had got a letter from him I should have met him at the station.

VI. Дополните вопросы диктора:

Model: *Sp.*: Are you ill? → *St.*: You look as if you were ill.

1. Are you tired? 2. Are you happy about it? 3. Are you busy now? 4. Are you comfortable? 5. Is he very weak? 6. Is he comfortable here? 7. Is she familiar with it? 8. Is she glad to see us?

VII. Читайте диалог синхронно с дикторами. Будьте готовы воспроизвести его в аудитории:

A.: Did you succeed in getting that paper?

B.: Yes, I did. I read it with great interest. I wish I could read some other paper dealing with the problem.

A.: I'll let you know if I find something interesting on the subject.

## LABORATORY WORK 32

1. Прочитайте следующие слова

1) с ударением на первом слоге!

previous, incident, altered, target, toward, nuclear, nuclei, adequately, relatively

**2) с ударением на втором слоге:**

atomic, predict, bombard, consist, exactly, detector, polonium, absorb, deflect, reject, account, initial, diameter

**II. Прослушайте следующие предложения. Обратите внимание на употребление бессоюзных условных придаточных предложений с обратным порядком слов:**

1. Were he here he would test the device. 2. Were I you I should repeat the experiment. 3. Had I time I should stay in the lab. 4. Had he been in the lab yesterday he could have answered your question. 5. Should I see them I should ask them about it. 6. Should you have tested the device, the experiment would have been more successful. 7. She would not ask for help could she do it herself. 8. Could he give the necessary information he would have completed the work on time.

**III. Выразите ту же мысль, используя обратный порядок слов в придаточных предложениях условия:**

**Model 1:** *Sp.: If it were not so cold, I should go with you.→ St.: Were it not so cold I should go with you.*

1. If I were you I should not do it. 2. In case he were here he would join us. 3. If she were asked about it she would give a detailed answer. 4. Providing we had a special dictionary we could translate this article. 5. If I had sent the telegram they would have met me. 6. Provided we had tested the device, it wouldn't have failed. 7. In case I had time, I should take part in the work. 8. Providing I could find the book, I should give it to you.

**IV. Прослушайте предложения. Выскажите сожаление по поводу того, что ваш собеседник не выполнил указанных действий (или не выполняет их):**

**Model 1:** *Sp.: If I studied better, I should pass my exams well.→ St.: It's a pity you don't study better.*

**Model 2:** *Sp.: If I had studied better last year, I would have passed my exams better.→ St.: It's a pity you didn't study better.*

1. If I knew English better, I could read technical periodicals. 2. If I had read the articles, I should have understood the problem better. 3. If he had come earlier, you would have seen him. 4. If she tried, she would do it herself. 5. If you had listened to his question you could have answered it. 6. If I had more time, I should solve the problem. 7. If you

followed this method, you would get better results. 8. If we had had time, we could have discussed the problem.

V. Прослушайте предложения. Скажите, что данные действия не были бы выполнены без участия лиц, указанных в скобках:

Model: Sp.: They finished the work on time. (*he*) →  
St.: But for him they wouldn't finished the work on time.

1. They translated that article. (*she*) 2. She tested the device. (*they*) 3. He solved that difficult problem. (*we*) 4. I made the accurate measurements. (*you*) 5. We obtained the necessary data. (*our engineer*) 6. They got the equipment they needed. (*he*) 7. She passed her end-of-term test successfully. (*her friends*)

VI. Переведите на английский язык:

Model: Sp.: Я привык читать этот журнал. →  
St.: I am used to reading this periodical.

1. Я привык решать задачи сам. 2. Он привык приходить сюда после занятий. 3. Мы привыкли заниматься вместе. 4. Она привыкла начинать работу рано. 5. Они привыкли обсуждать результаты вместе. 6. Я привык работать в библиотеке. 7. Мы привыкли пользоваться этим прибором. 8. Они привыкли тщательно проверять результаты.

VII. Читайте диалог синхронно с дикторами. Будьте готовы воспроизвести его в аудитории:

A.: What foreign periodical do you read to follow the latest developments in science abroad?

B.: I'm used to reading *The Scientific American*. One may find lots of interesting papers there on different problems of modern science.

A.: I wish I could sometimes read it too.

B.: No problem. You can easily get it in our college library.

---

abroad [ə'brɔ:d] — за рубежом

## КЛЮЧИ К РАЗДЕЛУ "WORD AND PHRASE STUDY" (ОСНОВНОЙ КУРС)

**Урок 1. Задание 1.** — (а) съедобный; (б) годный к употреблению (удобный, практичный); (в) воображимый, мыслимый; (г) поддающийся проверке, контролю; (д) сомнительный; (е) ошибочный

**Задание 2.** — (а) заметный, видимый, обозримый; (б) комфортабельный; (в) осуществимый, реальный; (г) осуществимость, целесообразность; (д) годный для питья, питьевой; (е) измеримый; (ж) измеримость

**Задание 3.** — (а) хорошая солнечная погода; (б) плащ; (в) снегопад; (г) дождь, атмосферные осадки; (д) иногда; (е) всюду, везде

**Урок 3. Задание 1.** — (а) изменчивый, неустойчивый; (б) согласный, приемлемый, приятный; (в) (благо)разумный, обоснованный; (г) воображимый, мыслимый; (д) сравнимый; (е) представительный; (ж) изменчивый, непостоянный, неустойчивый; (з) удобный, комфортабельный

**Задание 2.** — (а) неудобный; (б) неблагоприятный, необоснованный; (в) неприятный; (г) не поддающийся анализу; (д) такой, на который невозможно ответить; (е) не поддающийся управлению (контролю); (ж) несъедобный; (з) неподходящий, несоответствующий, негодный

**Урок 7. Задание 1.** — (1) неизвестный эффект; (2) неудобный автобус; (3) ненаписанные рассказы; (4) необычная жара; (5) неприятные слова; (6) незначительное влияние; (7) незанятое место; (8) необорудованная лаборатория

**Урок 10. Задание 1.** — (1) отозвать; (2) переписать; (3) переделать; (4) перечитать; (5) воспроизводить; (6) реконструировать; (7) отражать; (8) пересдать экзамен

**Урок 11. Задание 1.** — (1) примитивные часы; (2) эффективные перемены; (3) инициативные люди; (4) экстенсивная экономика; (5) декоративный эффект; (6) административные меры; (7) прогрессивные идеи

**Урок 12. Задание 1.** — (1) to measure; измеримый, измеримость; (2) to prefer; предпочтительный, предпочтительность; (3) to read; читабельный, читабельность; (4) to compare; сравнимый (сопоставляемый), сопоставляемость; (5) to recognize; неузнаваемый

**Задание 2.** — (1) drinkable water; (2) eatable fruit; (3) changeable weather; (4) achievable results; (5) explainable facts; (6) comparable results

**Урок 13. Задание 4.** — (1) Военное министерство; (2) Министерство внутренних дел; (3) Министерство иностранных дел; (4) Госдепартамент; (5) Министерство внешней торговли; (6) Министерство здравоохранения; (7) Министерство морского флота

**Задание 5.** — (1) Министр иностранных дел; (2) Заместитель министра внутренних дел; (3) Госсекретарь; (4) Министр финансов; (5) Министр обороны

**Урок 14. Задание 1.** — (1) — d; (2) — f; (3) — i; (4) — b; (5) — c; (6) — g; (7) — l; (8) — a; (9) — h; (10) — e

**Урок 15. Задание 2.** — (1) pain-ful (болезненный); (2) move-ment (движение); (3) smooth-ly (ровно, гладко); (4) steady-ly (устойчиво);

(5) perfect-ly (вполне, совершенно); (6) grace-ful-ly (грациозно); (7) destr-uctive (разрушительный); (8) accom-plish-ment (достижение); (9) un-believ-ab-ly (невероятно); (10) grow-th (рост); (11) vast-ness (громадность, обширность)

**Урок 16.** Задание 1.— (1) продуктивность (производительность); (2) быстрота; (3) точность; (4) серьезность; (5) успешность; (6) громад-ность

Задание 2.— (1) effectiveness; (2) thickness; (3) wetness; (4) fresh-ness; (5) darkness; (6) happiness; (7) deepness; (8) quickness; (9) richness; (10) coolness; (11) vastness; (12) roughness

**Unit 27.** Задание 1.— (1) coating — покрытие; (2) coupling — соеди-нение, сцепление; (3) converting — преобразование; (4) deriving — вы-ведение; (5) obtaining — получение; (6) reducing — понижение; (7) wind-ing — наматывание; (8) separating — разделение; (9) treating — обра-ботка, рассмотрение

**Unit 28.** Задание 1.— (1) градиент — г. поля; г. потенциала; г. влажности; г. плотности. (2) значение (величина) — а. напряженности поля; выходное з.; ненулевое з. (3) смещение — сеточное с.; с. сигнала; выходное с.; с. эмиттер-база. (4) коэффициент — к. усиления; к. усиления по току; к. мощности; к. поглощения.

Задание 2.— (1) emission — cathode e.; electron e.; secondary e. (2) load — working l.; anode l.; cathode l. (3) bias — positive b.; nega-tive b.; output b. (4) resistance — input r.; output r.; internal r.

**Unit 29.** — Задание 1.— (1) граница — г. домена; г. воздушного пространства; г. лазерного луча; подвижная г.; резкая г. (2) петля (контур) — замкнутый к.; п. тока; п. циркулирующего тока. (3) знак — з. деления; з. равенства; противоположный з.; отрицательный з.

Задание 2.— (1) current — anode c.; amplified c.; alternating c. (2) field — vector f.; probability f.; wave f.; pressure f.; radiation f. (3) charge — unit c.; zero c.; point c.; nuclear c.

## Ключи к тестам

*Test 1:* I — 1—3; 2—2; 3—4; II — 2, 4, 5; III — (1) attract; (2) meal; (3) away; (4) found; (5) conferred; IV — 1, 3, 4; V — (1) larger; (2) youngest; (3) elder; (4) older; (5) more interesting; (6) the most interesting.

*Test 2:* I — 1, 2, 4; II — 1, 3; III — 2, 4, 5; IV — (1) has done; (2) have achieved; (3) joined; (4) did not try; (5) Have . . . received; (6) woke up; (7) has lived; (8) Did . . . get.

*Test 3:* I — (1) have completed; (2) had been done; (3) have made; (4) had; (5) will; II — 2, 3, 5, 8; III — 1—d; 2—a; 3—c; 4—b; 5—e; 6—c; 7—f.

*Test 4:* I — 3, 4, 5, 7, 8; II — (1) are asked; (2) were offered; (3) asked; (4) was being waited for; (5) asked; III — 1) b, 2) b, 3) b; IV — 1, 2, 6.

*Test 5:* I — 2, 4, 6, 7, 8; II — 1, 4, 5; III — 1) c, 2) c, 3) c; IV — (1) I find the process to be too complicated. (2) I think the same physical law to apply to another problem. V — (1) The number of automatically controlled systems is expected to rise to 50%. (2) The electrical engi-neering industry is known to have made one more important contri-bution.

*Test 6:* I — 1, 3, 6; II — 2, 5, 8; III — (1) d, (2) a, (3) b.

*Test 7:* I — 2, 3, 5; II — 7, 9; III — 1, 2, 5, 6, 9.

# PHONETICS IN TABLES

## Чтение гласных букв в английском языке

### 1. Таблица чтения гласных букв в ударном слоге

Гласная \ Тип слога	Откры- тый	Закры- тый	Закры- тый буквой г	Открытый гл. + г + гл.
<b>A, a</b> [eɪ]	[eɪ]	[æ]	[ɑ]	[εə]
<b>E, e</b> [ɪ]	[ɪ]	[e]	[ə:]	[ɪə]
<b>I, i</b> [aɪ]	[aɪ]	[ɪ]		[aɪə]
<b>U, u</b> [ju:]	[ju:]	[ʌ]		[juə]
<b>O, o</b> [ou]	[ou]	[ɔ]	[ɔ]	[ɔ]

### 2. Таблица чтения буквы «A»

Открытый слог		Закрытый слог				
[eɪ]	[εə]	[ɑ]		[ɔ]		[ɔ], [ɔ]
aɪ, ay	a + r + гл., air	a + r a + th	a + f, n, s + согл.	a + u a + w	a + l + согл.	w (h) + a
pain play plait ray	pair care chair share	part path arc charm	plant past pass shaft	because August law launch	all also talk stalk	what was walk warm



### 3. Таблица чтения буквы «Е»

[i:]			[e]			[ə:]		[ɪə]
Открытый слог	ee, ea	ie	Закрытый слог	ea + d, v, th, lth	[ɪ] в ударном слоге	e + r	ear + согласная	ear, eer e + r + гласная
me be see Pete	beam meal feel feat	piece chief field shield	met pen hen set	head heavy health breath	edit enemy medical very	her term stern merge	heard early earth search	year here mere sphere

### 4. Сводная таблица чтения гласных «I», «Y»

[aɪ]		[ɪ]			[ə:]		[aɪə]	
Открытый слог	i + ld, nd, gn, gh	Закрытый слог	[ɪ] в ударном слоге	Неударное положение	ir, ur	y/i + r + согласная	ia, io	
fine dye type quite white	mild find sign sight light	pit system myth big dig	city image digit civil typical	infinity stability activity limiting ability	first third myrtle circle thirst	fire tyre wire tired require	via ion bias dial diode	

### 5. Таблица чтения буквы «O»

[ou]		[ɔ]		[ʌ]
Открытый слог		o + ld		Закрытый слог
no so vote sole probe		old cold hold sold told		not solve loss plot solvent
				done some love other son

# 6. Сводная таблица чтения гласной «U»

[ju:]	[u:]	[ʌ]	[ə:]	[juə]	[kw]
Открытый слог	Открытый слог после l, r, j	Закрытый слог	ur	ur + гл.	qu + гл.
cube tube music	blue rule June	bus club tunnel	burn turn burst	cure pure fury	quick quite quality

# 7. Чтение согласных и их буквосочетаний

c		ch		g		ph
[k]	[s] перед e, i, y	[tʃ]	[k]	[g]	[dʒ] перед e, i, y	[f]
case cube club	city cycle practice	channel cheap check	technique chemist chemical	gap goal tug	large gigantic dangerous	physics photo philosophy

# 8. Таблица чтения «W» в различных буквосочетаниях

w + гласная	wr	wh	wh + o	wh + a (закрытый слог)	war	wor
[w]	[r]	[w]	[h]	[wə]	[wə:]	[wə:]
wide wish wing twice wave wage well with width	write writer wreck wring wrink wrench wrong wrote	when white while which why	whole who [hu:] whom [hu:m] whose [hu:z]	want wash was watch what Washington	war warm ward reward	work worker world word worse

## GRAMMAR IN TABLES

### Структура английского предложения

1. Простое повествовательное предложение. В английском языке нет развитой системы падежей, и отношения между словами в предложении определяются строгим порядком слов и предлогами. На первом месте стоит подлежащее (1), на втором — сказуемое (2), далее следует дополнение (3) и обстоятельство (4). Обстоятельство времени может употребляться перед подлежащим, т. е. может занимать нулевую позицию (0). В данном учебнике структура английского повествовательного предложения будет изображаться цифрами (0), (1), (2), (3), (4). Например:

(0)	(1)	(2)	(3)	(4)
Sometimes At ten	He he he	takes takes goes	books books —	home. home. to bed.

2. Общий вопрос (требующий ответа «да» или «нет») всегда начинается с глагола. Все глаголы в английском языке можно условно разделить на две группы: группу вспомогательных глаголов и группу смысловых глаголов. Вспомогательные глаголы при образовании вопросительных предложений ставятся перед подлежащим. В эту группу входят все модальные глаголы (**must, can, may**), глаголы **be, have** во всех их формах в основном и вспомогательном значении, а также глаголы **shall, will** и некоторые другие. Например:

(1)		(2)		(3)
You		вспомогательный глагол	смысловая часть	
		are	a student.	
Are	you	—	a student?	Yes, I am.
				No, I am not.
	You	must	study.	
Must	you	—	study?	Yes, I must.
				No, I must not.
	You	have	friends.	
Have	you	—	friends?	Yes, I have.
				No, I have not.

Общий вопрос всех остальных глаголов образуется с помощью вспомогательного глагола **do (does, did)**, который ставится перед всем предложением. Порядок слов в предложении при этом не меняется. Например:

	(1)	(2)	(3)	(4)	
	You	study	—	at college.	
Do	you	study	—	at college?	Yes, I do. (No, I do not.)
	He	takes	books	home.	
Does	he	take	books	home?	Yes, he does. (No, he doesn't.)
	They	did	the work	well.	
Did	they	do	the work	well?	Yes, they did. (No, they did not.)

3. Специальный вопрос к группе подлежащего начинается с вопросительных слов **who** — *кто*, **what** — *что*, **which** — *который*, **whose** — *чей*, имеет ту же структуру, что и повествовательное предложение (прямой порядок слов) и произносится с понижением тона на последнем слове. Например:

	(2)		
	am	a student.	
Who	is	a student?	I am.
I	can	work.	
Who	can	work?	I can.

My bag	is	black.	
What	is	black?	My bag is.
Whose bag	is	black?	My bag is.
That man	is	a dentist.	
Which man	is	a dentist?	That man is.

4. Специальный вопрос ко всем остальным членам предложения (дополнению, различным группам обстоятельств) начинается вопросительными словами: **what** что; **who(m)** — кому, кого; **when** — когда; **what time** — в каком часу; **why** — почему; **how** — как, каким образом и другими, которые ставятся перед вспомогательным глаголом. Например:

	(1)	(2)	(3)	
	He	has	the book.	
Has	he	—	the book?	Yes, he has.
What	has	he?	—	The book.

	(1)	(2)	(3)	
	I	see	him.	
Do	you	see	him?	Yes, I do.
Who (m)	do	you	see?	— Him.

	(1)	(2)	(4)	
	He	works	well.	
Does	he	work	well?	Yes, he does.
How	does	he	work?	— Well.

## Местоимения в английском языке

### 1. Личные местоимения в именительном падеже

Лицо \ Число	Единственное	Множественное
1	I — я	we — мы
2	you — ты (Вы)	you — вы
3	he — он she — она it — он, она, оно	they — они (для лиц и предметов)

## 2. Личные местоимения в объектном падеже

Лицо \ Число	Единственное	Множественное
1	me — <i>меня, мне</i>	us — <i>нам, нас</i>
2	you — <i>тебя (Вас), тебе (Вам)</i>	you — <i>вам, вас</i>
3	him — <i>его, ему</i> her — <i>ее, ей</i> it — <i>его, ее, ему, ей</i>	them — <i>им, их</i> (для лиц и предметов)

## 3. Личные местоимения в притяжательном падеже (принадлежность предмета или понятия)

Лицо \ Число	Единственное	Множественное
1	my — <i>мой</i>	our — <i>наш</i>
2	your — <i>твой (Ваш)</i>	your — <i>ваш</i>
3	his — <i>его</i> her — <i>ее</i> its — <i>его, ее</i>	their — <i>их</i> (для лиц и предметов)

## 4. Указательные местоимения

Степень удаленности	Единственное число	Множественное число
близко	this — <i>этот, эта, это</i>	these — <i>эти</i>
далеко	that — <i>тот, та, то</i>	those — <i>те</i>



## 5. Неопределенные местоимения *some, any, no*

Тип предложения	Местоимение	Английский пример и русский эквивалент		
		Существительные исчисляемые		Существительные неисчисляемые
		Ед. число	Мн. число	Ед. число
Повествовательное		<i>некоторая, какая-то</i>	<i>несколько</i>	не переводится
		<i>some</i> { book difficulty	<i>some</i> { books difficulties	<i>some</i> tea
	<i>any</i>	<i>любая</i>	<i>любые</i>	<i>любой</i> (вид)
		<i>any</i> { book difficulty	<i>any</i> { books difficulties	<i>any</i> tea
Вопросительное		<i>какая-нибудь</i>	<i>какие-нибудь</i>	<i>сколько-нибудь</i>
	<i>any</i>	<i>any</i> { book difficulty	<i>any</i> { books difficulties	<i>any</i> tea
Отрицательное	<i>no</i>	<i>никакой (нет)</i>	<i>никаких (нет)</i>	<i>нисколько (нет)</i>
		<i>no</i> { book difficulty	<i>no</i> { books difficulties	<i>no</i> tea
	<i>any</i>	<i>not any</i> { book difficulty	<i>not any</i> { books difficulties	<i>not any</i> tea

Неопределенные местоимения *some, any, no* выполняют роль определителей существительных, и поэтому артикль перед существительными не употребляется.

6. Производные от неопределенных местоимений  
some, any, no, every

Тип предложения		
Повествовательное	Вопросительное и отрицательное	Отрицательное
some, any, every	any	no, any
somebody <i>кто-то</i> something <i>что-то</i>	anybody <i>кто-нибудь</i> anything <i>что-нибудь</i>	nobody } <i>никто,</i> not anybody } <i>никого</i>
anybody } <i>любой</i> everybody } <i>каждый</i>		nothing } <i>ничто,</i> not anything } <i>ничего</i>
anything } <i>всё</i> everything }		

Степени сравнения прилагательных и наречий

<div>Степень</div> <div>Наречие, прилагательное</div>		Сравнительная	Превосходная
		a (adv) + -er	the a (adv) + -est
односложные и двусложные	big heavy old	bigger heavier older (elder)	the biggest the heaviest the oldest (the eldest)
good (well) bad (badly) far  many (much) few (little)		better worse farther (further)  more less	the best the worst the farthest (fur- thest) the most the least

МНОГОСЛОЖНЫЕ		с помощью слов	
		more (less)	the most (least)
	difficult	more } difficult less }	the { most } diffi- least } cult
Сравнение с помощью союзов			
(not) as ... as		than (much ... than)	the ... of ...
as white as ... not as big as ...		... is better than ... ... is much worse than ...	the biggest of ...
		the ... the	
		the less ... the better	

## Числительные

## 1. Количественные:

0—zero ['ziərou]	7—seven
1—one [wʌn]	8—eight [eɪt]
2—two [tu:]	9—nine
3—three	10—ten
4—four [fɔ:]	11—eleven [ɪ'levn]
5—five	12—twelve
6—six	

От 13 до 19 прибавляется суффикс -teen:

13—thirteen ['θə:'ti:n]	17—seventeen
14—fourteen ['fɔ:'ti:n]	18—eighteen
15—fifteen ['fɪf'ti:n]	19—nineteen
16—sixteen	

Десятки образуются прибавлением суффикса **-ty**:

20 — <b>twenty</b>	60 — <b>sixty</b>
30 — <b>thirty</b> ['θə:ti]	70 — <b>seventy</b>
40 — <b>forty</b> ['fɔ:ti]	80 — <b>eighty</b>
50 — <b>fifty</b>	90 — <b>ninety</b>

Числительные 100 — **a (one) hundred**, 1000 — **a (one) thousand**, 1 000 000 — **a (one) million** употребляются с неопределенным артиклем и не имеют окончания **-s** во множественном числе. Например: **five hundred students**. Но: **hundreds of students** (слово **hundreds** является здесь существительным).

2. Все порядковые числительные, за исключением 1-й — **the first**, 2-й — **the second**, 3-й — **the third**, 5-й — **the fifth**, образуются прибавлением суффикса **-th** и всегда употребляются с определенным артиклем.

#### ЧТЕНИЕ СЛОЖНЫХ ЧИСЛИТЕЛЬНЫХ И ДАТ

101 — **one hundred and one**; 525 — **five hundred and twenty-five**; в 1962 — **in nineteen sixty-two**; в 1801 — **in eighteen hundred and one**.

Система времен английского языка (действительный залог)

Вид (как?)  Время (когда?)	Indefinite	Continuous	Perfect
	Обычное, регулярно повторяющееся действие	Длительное действие, происходящее в определенный момент	Действие, завершённое к определенному моменту
Present	V, V-ed, shall/will+V	be + V-ing	have + V-ed/V <sub>3</sub>
	<i>работают, бегут</i>	<i>работают, бежат</i>	<i>отработали, пробежали</i>
	V/V-s	am/is/are + V-ing	have/has + V-ed/V <sub>3</sub>
	The students work here. The boy runs fast.	The students are working here. The boy is running fast.	The students have just worked here. The boy has run a mile.
Past	<i>работали, бежали</i>	<i>работали, бежали</i>	<i>отработали, пробежали</i>
	V-ed/V <sub>2</sub>	was/were + V-ing	had + V-ed/V <sub>3</sub>
	The students worked here. The boy ran fast.	The students were working. The boy was running fast.	The students had worked before... The boy had run a mile by...

Вид (как)  Время (когда?)	Indefinite	Continuous	Perfect
	Обычное, регулярно повторяющееся действие	Длительное действие, происходящее в определенный момент	Действие, завершённое к определенному моменту
Future	V, V-ed, shall/will + V	be + V-ing	have + V-ed/V <sub>3</sub>
	<i>будут работать, будут бегать</i>	<i>будут работать, будет бегать</i>	<i>отработают, пробежит</i>
	shall/will + V	shall/will + be + V-ing	shall/will + have + V-ed/V <sub>3</sub>
	The students will work here. The boy will run fast.	The students will be working here. The boy will be running fast.	The students will have worked by... The boy will have run a mile...

## ACTIVE VOCABULARY

### Сокращения:

*n* noun — существительное;  
*v* verb — глагол; *a* — adjective —  
 прилагательное; *adv* adverb —

наречие; *pron* pronoun — местоимение; *conj* conjunction — союз;  
*num* numeral — числительное;  
*prep* preposition — предлог

## I. FUNDAMENTAL COURSE

### Урок 1

**climate** ['klaɪmɪt] *n* климат  
**coat** [kəʊt] *n* пиджак, пальто  
**condition** [kən'dɪʃn] *n* условие  
**feature** ['fi:tʃə] *n* черта  
**fog** [fɒg] *n* туман  
**frost** [frɒst] *n* мороз  
**kind** [kaɪnd] *n* вид, род, сорт  
**range** [reɪndʒ] *n* предел, диапа-  
 зон  
**reason** ['ri:zn] *n* причина  
**snow** [snəʊ] *n* снег

**bring** [brɪŋ] *v* приносить  
**happen** ['hæpən] *v* случаться  
**common** ['kɒmən] *a* общий  
**low** [ləʊ] *a* низкий  
**mild** [maɪld] *a* мягкий, умерен-  
 ный  
**pleasant** ['plezənt] *a* приятный  
**wet** [wet] *a* влажный  
**wide** [waɪd] *a* широкий  
**because of** [bi'kɒz əv] из-за  
**as a whole** [əʊl] в целом

### Урок 2

**area** ['ɛəriə] *n* площадь  
**colour** ['kʌlə] *n* цвет  
**comparison** [kəm'pærɪsn] *n* срав-  
 нение  
**hand** [hænd] *n* рука; стрелка  
**earth** [ɜ:θ] *n* земля  
**lake** [leɪk] *n* озеро  
**map** [mæp] *n* карта  
**per cent** [pə 'sent] процент  
**picture** ['pɪktʃə] *n* картин(к)а  
**river** ['rɪvə] *n* река

**salt** [sɔ:lt] *n* соль  
**surface** ['sɜ:fɪs] *n* поверхность  
**water** ['wɔ:tə] *n* вода  
**cover** ['kʌvə] *v* покрывать(ся)  
**compare** [kəm'pɛə] *v* сравнивать  
**lie** [laɪ] (lied) *v* лежать  
**point** [pɔɪnt] *v* указывать  
**fresh** [frefʃ] *a* свежий  
**left** [left] *a* левый  
**yellow** ['jeləʊ] *a* желтый  
**by the way** между прочим

### Урок 3

**degree** [di'ɡri:] *n* степень, градус  
**difference** ['dɪfrəns] *n* различие  
**agree** [ə'ɡri:] *v* соглашаться  
**differ** ['dɪfə] *v* различать(ся)  
**grow** [ɡrəʊ] *v* расти  
**register** ['redʒɪstə] *v* регистриро-  
 вать

**vary** ['vɛəri] *v* изменять(ся)  
**comfortable** ['kʌmfətəbl] *a* ком-  
 фортабельный  
**dry** [draɪ] *a* сухой  
**distinct** [dɪ'stɪŋkt] *a* особый;  
 отчетливый  
**mean** [mi:n] *a* средний

**suitable** ['sjʊtəbl̩] *a* удобный  
**gradually** ['grædʒuəli] *adv* постепенноно  
**therefore** ['ðeəfɔ:] *adv* поэтому  
**however** [haʊ'evə] *cj* тем не менее

**neither ... nor** ['naɪðə ... nɜ:]  
*cj* ни ... ни  
**the ... the** чем ..., тем (*употребляется при степенях сравнения*)

## Урок 4

**bread** [bred] *n* хлеб  
**butter** ['bʌtə] *n* масло  
**cheese** [tʃi:z] *n* сыр  
**breakfast** ['brekfəst] *n* завтрак  
**custom** ['kʌstəm] *n* привычка, обычай  
**head** [hed] *n* голова  
**fish** [fɪʃ] *n* рыба  
**juice** [dʒʊ:s] *n* сок (фруктовый)  
**egg** *n* яйцо  
**milk** *n* молоко  
**meal** [mi:l] *n* принятие пищи, еда  
**pound** [paʊnd] *n* фунт  
**potato** [pə'tetəʊ] *n* картофель

**supper** ['sʌpə] *n* ужин  
**vegetable** ['vedʒɪtəbl̩] *n* овощ  
**include** [ɪn'klʊd] *v* включать  
**drink** [drɪŋk] (*drank, drunk*) *v* пить  
**offer** ['ɔ:fə] *v* предлагать  
**gather** ['gæðə] *v* собираться  
**leave (for)** [li:v] (*left*) *v* оставлять, покидать; уезжать (в)  
**chief** [tʃi:f] *a* главный  
**expensive** [ɪks'pensɪv] *a* дорогостоящий  
**main** [meɪn] *a* главный, основной  
**per head** на душу населения

## Урок 5

**boat** [bəʊt] *n* лодка  
**equipment** [ɪ'kwɪpmənt] *n* оборудование, оснащение  
**holiday** ['hɒlɪdɪ] *n* отпуск  
**neighbour** ['neɪbə] *n* сосед  
**mountain** ['maʊntɪn] *n* гора  
**ride** [raɪd] (*rode, ridden*) *v* ехать  
**song** [sɒŋ] *n* песня  
**stamp** [stæmp] *n* марка (почтовая)  
**country-side** ['kʌntri'saɪd] *n* сельская местность

**attend** [ə'tend] *v* посещать  
**attract** [ə'trækt] *v* привлекать, притягивать  
**devote** [dɪ'vəʊt] *v* посвящать  
**pass** [pɑ:s] *v* проходить, передавать  
**pack** [pæk] *v* упаковывать  
**prefer** [prɪ'fɜ:] *v* предпочитать  
**return** [rɪ'tɜ:n] *v* возвращаться  
**free** [fri:] *a* свободный  
**during** ['dʒuərɪŋ] *prep* в течение

## Урок 6

**achievement** [ə'tʃɪvmənt] *n* достижение  
**education** [ˌedʒu'keɪʃn] *n* образование  
**graduate (from)** ['grædʒueɪt] *v* окончить (высшее учебное заведение)  
**importance** [ɪm'pɔ:təns] *n* важность, значимость  
**influence** ['ɪnfluəns] *n* влияние

**increasingly** [ɪn'krɪsɪŋli] *adv* все больше и больше  
**research** [rɪ'sɜ:tʃ] *n* исследование  
**road** [rəʊd] *n* дорога, путь  
**square** [skweə] *n* площадь, квадрат  
**achieve** [ə'tʃɪv] *v* достигать, добиваться  
**conduct** [kən'dʌkt] *v* проводить  
**found** [faʊnd] *v* основывать



improve [im'pru:v] *v* улучшать  
 lead [li:d] (led) *v* вести  
 mankind [mæn'kaɪnd] *n* челове-  
 чество  
 provide [prə'vaɪd] *v* обеспечи-  
 вать  
 recognize ['rekəgnaɪz] *v* узна-  
 вать, признавать  
 deep [di:p] *a* глубокий  
 necessary ['nesɪsəri] *a* необходи-  
 мый

serious ['sɪəriəs] *a* серьезный  
 significant [sɪg'nɪfɪkənt] *a* зна-  
 чительный, важный  
 sufficient [sə'fɪsənt] *a* достаточ-  
 ный  
 up-to-date *a* современный  
 closely ['kloʊslɪ] *adv* близко,  
 тесно  
 to be closely connected with  
 быть тесно связанным с ...

## Урок 7

council ['kaʊnsɪl] *n* совет  
 member ['membə] *n* член  
 reference ['ref(ə)rəns] *n* ссылка  
 (на кого-л., что-л.)  
 residence ['rezɪdəns] *n* прожи-  
 вание, местожительство  
 term [tɜ:m] *n* семестр  
 admit [əd'mɪt] *v* признавать,  
 допускать  
 appear [ə'piə] *v* появляться,  
 оказываться  
 choose [tʃu:z] (chose, [tʃouz],  
 chosen [tʃouzn]) *v* выбирать  
 confir [kən'fɜ:] (a degree) *v* при-  
 суждать (ученую степень)  
 establish [ɪ'stæblɪʃ] *v* устанавли-  
 вать  
 govern ['gʌvn] *v* управлять  
 lodge [lɒdʒ] *v* предоставить по-  
 мещение

mix *v* смешивать(ся)  
 transform [træns'fɔ:m] *v* преоб-  
 разовывать(ся)  
 cheap [tʃi:p] *a* дешевый  
 final ['faɪnəl] *a* конечный, за-  
 ключительный  
 independent [,ɪndɪ'pendənt] *a* не-  
 зависимый  
 essentially [ɪ'sənʃəli] *adv* по су-  
 ществу  
 considerably [kən'sɪdərəbli] *adv*  
 значительно  
 to be associated [ə'souʃɪeɪtɪd]  
 with быть связанным с чем-л.  
 to be in charge (of) [tʃɑ:ʒ] от-  
 вечать за что-л.  
 in spite of [ɪn 'spaɪt əv] не-  
 смотря (на)

## Урок 8

attention [ə'tenʃn] *n* внимание  
 circus ['sɜ:kəs] *n* цирк  
 experience [ɪks'pɪəriəns] *n* (жиз-  
 ненный) опыт  
 job [jɒb] *n* работа  
 means [mi:nz] *n* (использ. с ед.  
 и мн. ч.) средство, спо-  
 соб  
 struggle ['strʌgl] *n* борьба  
 war [wɔ:] *n* война  
 be born родиться  
 doubt [daʊt] *v* сомневаться  
 excite [ɪk'saɪt] *v* возбуждать(ся)  
 hear [hiə] (heard [hɜ:d]) *v* слышать

move [mu:v] *v* двигаться  
 remember [rɪ'membə] *v* помнить,  
 вспоминать  
 settle [setl] *v* поселаться, обо-  
 сновываться  
 travel ['trævl] *v* путешествовать  
 single ['sɪŋgl] *a* одинокий, един-  
 ственный  
 true [tru:] *a* истинный, верный  
 especially [ɪs'peʃəli] *adv* в осо-  
 бенности, особенно  
 quite [kwat] *adv* совершенно,  
 полностью  
 whether ['weðə] *conj* ли

## Урок 9

**capacity (for)** [kə'pæsɪtɪ] *n* способность к чему-л.

**effect** [ɪ'fekt] *n* влияние, действие

**field** [fi:ld] *n* поле

**middle** [mɪdl] *n* середина

**complete** [kəm'plɪt] *v* заканчивать, завершать

**decide** [dɪ'saɪd] *v* принимать решение

**hike** [haɪk] *v* совершать длительные прогулки

**join** [dʒɔɪn] *v* присоединять(ся)

**move** [mu:v] *v* двигаться, переезжать

**enough** [ɪ'nʌf] *a* достаточный

**again** [ə'geɪn] *adv* снова

**that's why** вот почему

**to get interested in** заинтересоваться чем-л.

**as far as** насколько

## Урок 10

**century** ['sentʃuri] *n* столетие, век

**death** [deθ] *n* смерть

**guest** [gest] *n* гость

**highway** ['haɪwei] *n* шоссе, главный путь

**member** ['membə] *n* член

**memory** ['meməri] *n* память

**memorable** ['memərəbl] *a* памятный, незабвенный

**palace** ['pælɪs] *n* дворец

**stage** [steɪdʒ] *n* сцена, театр

**tour** [tuə] *n* путешествие, турне

**arrange** [ə'reɪndʒ] *v* устраивать(ся), организовывать

**expect** [ɪks'pekt] *v* ожидать; рассчитывать; предполагать

**relax** [rɪ'læks] *v* ослаблять(ся), уменьшать напряжение

**return** [rɪ'tɜ:n] *v* возвращать(ся)

**show** [ʃəʊ] (showed, shown) *v* показывать

**frequent** ['fri:kwənt] *a* частый

**situated** ['sɪtʃueɪtɪd] *a* расположенный; помещенный каким-л. образом

**abroad** [ə'brɔ:d] *adv* за границей

**later on** ['leɪtə'ɒn] позже, позднее

**outside** ['aʊt'saɪd] *adv* снаружи; на (открытом) воздухе

## Урок 11

**beauty** ['bjʊtɪ] *n* красота

**case** [keɪs] *n* случай, дело

**heart** [hɑ:t] *n* сердце

**ice** [aɪs] *n* лед

**stone** [stəʊn] *n* камень

**subject** ['sʌbdʒɪkt] *n* тема

**surprise** [sə'praɪz] *n* удивление

**underground** [ˌʌndə'graʊnd] *n* метрополитен

**arrive** [ə'raɪv] *v* прибывать

**consist (of)** [kən'sɪst] *v* состоять (из)

**continue** [kən'tɪnju:] *v* продолжать(ся)

**keep** [ki:p] (kept) *v* держать, сохранять

**seem** [si:m] *v* казаться

**along (with)** [ə'lɒŋ] *adv* наряду, вместе (с)

**as soon as** *adv* как только

**extremely** [ɪks'tri:mli] *adv* чрезвычайно, крайне

**probably** ['prɒbəbli] *adv* возможно, вероятно

**straight** [streɪt] *adv* прямо

**provided** [prə'vaɪdɪd] *conj* при условии если

**unless** [ən'les] *conj* если не

**until** [ən'tɪl] *conj* до тех пор (пока)

## Урок 12

**appear** [ə'piə] *v* появляться  
**appearance** [ə'piərəns] *n* появление  
**distance** ['distəns] *n* расстояние  
**goods** [gudz] *n* товары  
**market** ['mɑ:kɪt] *n* рынок  
**money** ['mʌni] *n* деньги  
**quality** ['kwɒləti] *n* качество  
**depend (on, upon)** [di'pend] *v* зависеть (от)  
**increase** [in'kri:s] *v* увеличивать(ся), возрастать  
**famous** ['feɪməs] *a* известный, знаменитый

**grey** [greɪ] *a* серый  
**narrow** ['nærou] *a* узкий  
**quick** [kwɪk] *a* быстрый  
**due to** [dju:] *prep* благодаря; вследствие; в результате  
**rather (than)** ['rɑ:ðə] *adv* лучше, скорее; предпочтительнее; а не...  
**to be concerned** [kən'sænd] *with* быть связанным с чем-л., иметь отношение к чему-л.  
**to be due to** обусловленный чем-л.

## Урок 13

**absence** ['æbsəns] *n* отсутствие  
**affair** [ə'feə] *n* дело  
**Board of Trade** ['bɔ:d əv 'treɪd] *n* министерство торговли  
**chair** [tʃeə] *n* 1. стул; 2. председательское место  
**chairman** *n* председатель  
**defence** [di'fens] *n* оборона  
**example** [ɪg'zɑ:mpəl] *n* пример  
**for example** например  
**head** [hed] *n* 1. голова; 2. глава, руководитель  
**health** [helθ] *n* здоровье  
**government** ['gʌvnmənt] *n* правительство  
**law** [lɔ:] *n* закон  
**majority** [mə'dʒɔ:riti] *n* большинство  
**minority** [maɪ'nɔ:riti] *n* меньшинство

**vote** *n* голосование, голос (избирательный)  
**define** [di'faɪn] *v* определять  
**elect** [ɪ'lekt] *v* избирать  
**fill** *v* наполнять, заполнять  
**remain** [rɪ'meɪn] *v* оставаться  
**strike** [straɪk] (struck) [strʌk] *v* бастовать  
**support** [sə'pɔ:t] *v* поддерживать  
**suffer** ['sʌfə] *v* страдать  
**numerous** ['nju:mərəs] *a* многочисленный  
**rough** [raʊ] *a* грубый  
**further** ['fɜ:ðə] *a* дальнейший; *adv* дальше  
**downtown** *adv* в деловой части города, в центре  
**according to** [ə'kɔ:diŋ] *prep* согласно; в соответствии с  
**to be responsible for** отвечать за

## Урок 14

**advice** [əd'vaɪs] *n* совет  
**branch** [brɑ:ntʃ] *n* ветвь, отрасль  
**exception** [ɪk'sepʃn] *n* исключение  
**power** [paʊə] *n* власть, сила, мощность  
**purpose** ['pɜ:pəs] *n* цель  
**rate** [reɪt] *n* темп, скорость  
**rule** [ru:l] *n* правление  
**serve** [sɜ:v] *v* служить  
**service** ['sɜ:vɪs] *n* служба

**adopt** [əd'ɒpt] *v* принимать  
**advise** [əd'vaɪz] *v* советовать  
**determine** [di'tɜ:mɪn] *v* определять  
**divide** [di'vaɪd] *v* делить(ся)  
**expand** [ɪks'pænd] *v* расширять(ся)  
**succeed** [sək'sɪd] *v* удаваться, иметь успех  
**experience** [ɪks'pɪəriəns] *v* испытывать

**equal** ['ɪkwəl] *a* равный, одинаковый  
**to be responsible for** отвечать за  
**to be based on** основывать(ся) на  
**to be divided into** делить(ся) на

**under the constitution** по (согласно) конституции  
**under these conditions** в этих условиях  
**under these circumstances** при этих обстоятельствах  
**for a term of** на срок

## Урок 15

**effort** ['efət] *n* усилие  
**event** ['i:vnt] *n* случай, событие  
**force** [fɔ:s] *n* сила  
**opportunity** [ˌɒpə'tju:nɪti] *n* удобный случай, благоприятная возможность  
**pain** [peɪn] *n* боль  
**path** [pɑ:θ] *n* путь, дорога  
**solution** [sə'lju:ʃn] *n* решение  
**accomplish** [ə'kɒmplɪʃ] *v* совершать, достигать  
**defend** [di'fend] *v* защищать(ся); отстаивать  
**emerge** [i'mædʒ] *v* появляться  
**match** [mætʃ] *v* соответствовать, подходить

**sacrifice** ['sækrɪfaɪs] *v* приносить в жертву, жертвовать  
**advanced** [əd'vɑ:nst] *a* передовой  
**huge** ['hju:dʒ] *a* огромный  
**rare** [reə] *a* редкий  
**reasonable** ['rɪzənəbl] *a* (благо)-разумный, умеренный; приемлемый  
**vast** [vɑ:st] *a* обширный, громадный  
**vivid** ['vɪvɪd] *a* живой, яркий  
**towards** [tə'wɔ:dz] *prep* указывает на движение по направлению к предмету, (по направлению) к  
**within** [wɪ'dɪn] *prep* в пределах  
**aside from** за исключением  
**keep in mind** помнить о

## Урок 16

**capacity** [kə'pæsɪti] *n* объем, способность; тех. мощность, производительность  
**heat** [hi:t] *n* жара  
**income** ['ɪnkəm] *n* доход, заработок  
**point** [pɔɪnt] *n* точка  
**profit** ['prɒfɪt] *n* выгода, прибыль  
**stock** [stɒk] *n* запас, фонд (эд. жилищный фонд)  
**utilities** [ju'tɪlɪtɪz] *n pl* коммунальные услуги  
**wage** [weɪdʒ] *n* (преимущественно мн. ч.) заработная плата

**afford** [ə'fɔ:d] *v* позволить себе (что-л.)  
**destroy** [dɪ'strɔɪ] *v* истреблять, разрушать  
**estimate** ['estɪmeɪt] *v* оценивать  
**include** [ɪn'klud] *v* 1. заключать в себе; 2. включать в состав  
**receive** [rɪ'si:v] *v* получать  
**magnificent** [mæg'nɪfɪsnt] *a* великолепный, величественный  
**specific** [spɪ'sɪfɪk] *a* характерный, особенный  
**actually** ['æktʃuəli] *adv* фактически, по существу  
**freeze to death** умирать от холода

## II. SPECIAL COURSE

### Unit 17

**agree** [ə'ɡri:] *v* соглашаться  
**convert** [kən'veɪt] *v* превращать (ся)

**deal (with)** *v* иметь дело (с)  
**decimal** ['desɪməl] *a* десятичный  
**density** ['densɪti] *n* плотность

**derive (from)** [dɪ'raɪv] *v* получать, извлекать (из)  
**dimension** [dɪ'menʃən] *n* размер  
**inch** [ɪnʃ] *n* дюйм  
**length** [lɛŋθ] *n* длина  
**multiple** ['mʌltɪpl] *a* многократный, кратный; *n* мат. кратное число  
**multiply** ['mʌltɪplaɪ] *v* умножать  
**obtain** [əb'teɪn] *v* получать  
**possess** [pə'zes] *v* обладать, владеть  
**pound** [paʊnd] *n* фунт (*единица измерения*)  
**purpose** ['pʊrəs] *n* цель

**quantity** ['kwɒntəti] *n* количество, величина  
**relate** [rɪ'leɪt] *v* (to, with) устанавливать отношения между  
**shift** *n* изменение, сдвиг  
**unit** ['juːnɪt] *n* единица измерения  
**original** [ə'rɪdʒɪnəl] *a* первоначальный  
**velocity** [vɪ'ləsɪti] *n* скорость  
**volume** ['vɒljʊm] *n* объем  
**to be interrelated with** быть взаимосвязанным с чем-л.  
**thanks to** благодаря чему-л.  
**in terms of** исходя из, на основании

## Unit 18

**amount** [ə'maʊnt] (to) *v* доходить (до)  
**broad** [brɔ:d] *a* широкий  
**cause** [kɔ:z] *n* причина, основание, повод; *v* причинять, вызывать, заставлять  
**complete** [kəm'plɪt] *a* полный, законченный  
**concern** [kən'sɜ:n] *v* касаться, иметь отношение  
**convenient** [kən'vɪnjənt] *a* удобный, подходящий  
**definite** ['defɪnɪt] *a* определенный  
**describe** [dɪs'kraɪb] *v* описывать  
**direction** [dɪ'rekʃən] *n* направление  
**happen** [hæpən] *v* случаться, иметь место  
**indicate** ['ɪndɪkeɪt] *v* указывать  
**involve** [ɪn'vɒlv] *v* включать в себя, содержать

**magnitude** ['mæɡnɪtju:d] *n* величина, размер  
**meaning** ['miːnɪŋ] *n* значение  
**motion** ['məʊʃn] *n* движение  
**object** ['ɒbdʒɪkt] *n* тело  
**particle** ['pɑːtɪkl] *n* частица  
**phenomenon** [fɪ'nɒmɪnən] *n* (*pl. phenomena*) явление  
**precise** [prɪ'saɪs] *a* точный  
**primarily** ['praɪməri] *adv* главным образом  
**refer** [rɪ'fɜ:] (to) *v* ссылаться (*на что-л.*)  
**reference** ['refrəns] *n* ссылка  
**specify** [spesɪfaɪ] *v* точно определять  
**standpoint** *n* точка зрения  
**by the way** между прочим  
**for instance** например  
**to be concerned with** касаться чего-л.; иметь дело с чем-л.  
**with respect to** относительно

## Unit 19

**acceleration** [æk'selə'reɪʃn] *n* ускорение  
**account (for)** [ə'kaʊnt] *v* отвечать (за); объяснять  
**apply** [ə'plaɪ] *v* применять  
**assume** [ə'sjuːm] *v* предполагать, допускать  
**curve** [kɜ:v] *n* кривая  
**directly** [dɪ'rektlɪ] *adv* прямо; непосредственно; немедленно

**indirectly** [ɪndɪ'rektlɪ] *adv* косвенно  
**explain** [ɪks'pleɪn] *v* объяснять  
**exert** [ɪɡ'zɜ:t] *v* напрягать (силы)  
**extent** [ɪks'tent] *n* степень, мера; to what *e.* до какой степени, насколько  
**fall** [fɔ:l] (*fell, fallen*) *v* опускаться, понижаться  
**lay** [leɪ] (*laid*) *v* класть; **lay down**

**the law** устанавливать, формулировать закон  
**inversely** [ɪn'vɜːslɪ] *adv* обратно пропорционально  
**net** *a* чистый, суммарный  
**path** [pɑːθ] *n* путь, траектория  
**product** ['prɒdʌkt] *n* продукт, результат; *mat.* произведение  
**prove** [pruːv] *v* доказывать  
**publish** ['pʌblɪʃ] *v* издавать  
**reduce** [rɪ'djuːs] *v* понижать  
**region** ['rɪdʒən] *n* 1. край, область; 2. зона, полоса; 3. район

**responsible** [rɪs'pɒnsəbl] *a* ответственный за что-л.  
**respectively** [rɪs'pektɪvlɪ] *adv* соответственно  
**separate** ['sepəreɪt] *v* отделять, разделять  
**uniform** ['juːnɪfɔːm] *a* единообразный, однородный  
**weigh** [weɪ] *v* взвешивать, оценивать  
**weight** [weɪt] *n* 1. вес; 2. тяжесть; 3. значение, влияние  
**zero** ['ziəroʊ] *n* ноль

## Unit 20

**appreciably** [ə'priːəbəlɪ] *adv* заметно, ощутимо  
**briefly** ['brɪflɪ] *adv* кратко, сжато  
**bright** [braɪt] *a* яркий, светлый  
**candle** ['kændl] *n* свеча  
**certain** ['sɜːtən] *a* определенный  
**emit** [ɪ'mɪt] *v* испускать, излучать  
**glow** [gləʊ] *v* накаляться докрасна  
**incandescence** [ɪnkæp'nɪsəns] *n* накал; белое каление  
**intensity** [ɪn'tensɪtɪ] *n* интенсивность, напряженность  
**light** [laɪt] (*lit*) *v* зажигать, освещать  
**luminous** ['lʊmɪnəs] *a* светящийся, светлый

**luminescent** [ˌlʊmɪ'nesnt] *a* люминесцентный, светящийся  
**luminescence** [ˌlʊmɪ'nesns] *n* свечение, люминесценция  
**maintain** [meɪn'teɪn] *v* поддерживать  
**particular** [pə'tɪkjʊlə] *a* особый  
**point** [pɔɪnt] *n* точка  
**reach** [riːtʃ] *v* достигать  
**reflect** [rɪf'lekt] *v* отражать  
**source** [sɔːs] *n* источник  
**substance** ['sʌbstəns] *n* материя, вещество  
**touch** [tʌtʃ] *v* касаться, трогать  
**visible** ['vɪzɪbl] *a* видимый  
**other than** кроме, за исключением  
**as far as ... is concerned** что касается

## Unit 21

**arrow** ['æroʊ] *n* стрела, стрелка  
**angle** ['æŋɡl] *n* угол  
**beam** [biːm] *n* пучок  
**bounce off** [baʊns] *v* отскакивать (от); подпрыгивать  
**coarse** [kɔːs] *a* грубый, шероховатый  
**distinguish** [dɪ'stɪŋɡwɪʃ] *v* различать  
**distort** [dɪs'tɔːt] *v* искажать, искривлять  
**dot** *n* точка; **a dotted line** пунктирная линия  
**farther** ['fɑːðə] *adv* дальше (*сравнит.*, *от far*)

**beyond** [bɪ'jɒnd] *adv* выходить за пределы  
**imaginary** [ɪ'mædʒɪn(ə)rɪ] *a* воображаемый, мнимый  
**imagine** [ɪ'mædʒɪn] *v* воображать, представлять себе  
**incident** ['ɪnsɪdənt] *a* падающий  
**intersect** [ɪntə'sekt] *v* пересекать(ся)  
**laugh** [lɑːf] *v* смеяться  
**lean** [liːn] (**leaned**, **leant**) *v* опираться  
**mirror** ['mɪrə] *n* зеркало  
**occur** [ə'kɜː] *v* 1. встречаться; 2. случаться, происходить

**plane** *n* плоскость, проекция  
**quantitative** [ˈkwɒntətɪv] *a* ко-  
 личествовннй  
**ray** [reɪ] *n* луч  
**regular** [ˈregjʊlə] *a* правильный;  
 регулярный

**refraction** [rɪˈfrækʃən] *n* прелом-  
 ление  
**silver** [ˈsɪlvə] *n* серебро  
**strike** [straɪk] (**struck**) *v* ударять-  
 (ся)

## Unit 22

**abandon** [əˈbændən] *v* отказы-  
 ваться от  
**accept** [əkˈsept] *v* принимать  
**adequate** [ˈædɪkwɪt] *a* соответ-  
 ствующий, адекватный  
**behaviour** [bɪˈheɪvɪə] *n* поведение  
**complementary** [kɒmplɪˈment(ə)-  
 tɪ] *a* дополнительный  
**confirm** [kənˈfɜːm] *v* подтвер-  
 ждать  
**enable** [ɪˈneɪbl] *v* давать возмож-  
 ность  
**favour** [ˈfeɪvə] *n* одобрение  
**hence** [hens] *adv* следовательно  
**hit** (hit) *v* ударять  
**initial** [ɪˈnɪʃəl] *a* (перво)началь-  
 ный  
**lack** (of) *n* отсутствие, недоста-  
 ток

**merely** [ˈmiəli] *adv* только, про-  
 сто  
**opaque** [ouˈpeɪk] *a* непрозрач-  
 ный, светонепроницаемый  
**predict** [prɪˈdɪkt] *v* предска-  
 зывать  
**prestige** [presˈtɪʒ] *n* престиж  
**reasonable** [ˈrɪzənəbl] *a* разум-  
 ный, приемлемый  
**result** (from) [rɪˈzʌlt] *v* 1. следо-  
 вать, проистекать; 2. являться  
 результатом чего-л.  
**similar** [ˈsɪmɪlə] *a* подобный  
**shadow** [ˈʃædəʊ] *n* тень  
**successful** [səkˈsesfʊl] *a* успеш-  
 ный, удачный  
**suggest** [səˈdʒest] *v* предлагать  
**weak** [wiːk] *a* слабый  
**wave** [weɪv] *n* волна  
**in favour of** за, в защиту

## Unit 23

**allow** [əˈlaʊ] *v* позволять, до-  
 пускать  
**band** *n* полоса, зона  
**disperse** [dɪsˈpɜːs] *v* рассеивать  
**double** [ˈdʌbl] *a* двойной  
**draw** [drɔː] (**drew**, **drawn**) [druː,  
 drɔːn] *v* чертить, проводить  
 линию  
**equidistant** [ˈɪkwɪˈdɪstənt] *a* рав-  
 ноотстоящий  
**exhibit** [ɪgˈzɪbɪt] *v* показывать,  
 проявлять  
**frequency** [ˈfrɪkwənsɪ] *n* частота

**grating** [ˈɡreɪtɪŋ] *n* решетка  
**interference** [ˌɪntəˈfɪərəns] *n* ин-  
 терференция, помехи  
**obvious** [ˈɒbvɪəs] *a* очевидный,  
 явный  
**pattern** [ˈpætən] *n* образец, ри-  
 сунк  
**procedure** [prəˈsiːdʒə] *n* процедура  
**screen** [skriːn] *n* экран  
**slit** *n* щель  
**spread** [spred] (**spread**) *v* прости-  
 раться, распространяться

## Unit 24

**arrange** [əˈreɪndʒ] *v* устраивать-  
 (ся), располагать  
**hydrogen** [ˈhaɪdrɪdʒən] *n* водо-  
 род

**matter** [ˈmætə] *n* вещество, ма-  
 терия  
**order** [ˈɔːdə] *n* порядок, последо-  
 вательность

**range** ['reɪndʒ] *n* 1. ряд; 2. амплитуда; 3. диапазон  
**series** ['sɪəri:z] (*pl.* без изменения) *n* 1. ряд; 2. серия

**sodium** ['səʊdɪəm] *n* натрий  
**spectrum** ['spektrəm] *n* (*pl.* spectra) спектр  
**vapour** ['veɪpə] *n* пар

## Unit 25

**associate** [ə'səʊʃieɪt] *v* ассоциировать(ся)  
**combine** [kəm'baɪn] *v* объединять(ся)  
**droplet** ['drɒplɪt] *n* капелька  
**emerge** [ɪ'mɜ:dʒ] *v* появляться, возникать  
**exhaust** [ɪg'zɔ:st] *v* истощать, исчерпывать  
**exhaustive** *a* исчерпывающий  
**incidentally** [ɪn'sɪ'dentəli] *adv* случайно  
**index** ['ɪndeks] (*pl.* indices ['ɪndɪksɪz]) *n* индекс

**internal** [ɪn'tɜ:nəl] *a* внутренний  
**medium** ['mi:djəm] (*pl.* media) *n* среда  
**obliquely** [ə'blɪkli] *adv* косо, под углом  
**rainbow** ['reɪnbəʊ] *n* радуга  
**resemble** [rɪ'zembl] *v* походить, иметь сходство  
**strikingly** ['straɪkɪŋli] *adv* поразительно, удивительно  
**transparent** [træns'pæərənt] *a* прозрачный  
**undergo** [ʌndə'ɡəʊ] *v* испытывать, подвергаться чему-л.

## Unit 26

**across** *adv* сквозь, через  
**alternating** [ˌɔ:ltəneɪtɪŋ] *a* переменный; **a. current** переменный ток  
**capacitor** [kə'pæsɪtə] *n* конденсатор, емкость  
**charge** [tʃɑ:dʒ] *n* заряд; *v* заряжать  
**circuit** ['sɜ:kɪt] *n* цепь, контур  
**considerable** [kən'sɪdərəbl] *a* значительный  
**current** ['kʌrənt] *n* эл. ток  
**drop** *v* падать, спадать  
**eject** [ɪ'dʒekt] *v* испускать, выбрасывать  
**enclose** [ɪn'klaʊz] *v* окружать, заключать  
**escape** [ɪs'keɪp] *v* вылетать, утекать  
**field** *n* поле, область  
**filament** ['fɪləmənt] *n* эл. нить накала

**negative** ['negətɪv] *a* отрицательный  
**nevertheless** [nevəðə'les] *adv*, *conj* тем не менее, несмотря на  
**overcome** (overcame, overcome) *v* преодолеть  
**perfect** ['pɜ:fɪkt] *a* совершенный, безупречный  
**rectify** ['rektɪfaɪ] *v* выпрямлять (ток)  
**resistance** [rɪ'zɪstəns] *n* сопротивление  
**reverse** [rɪ'vɜ:s] *v* перевертывать  
**terminal** ['tɜ:mɪnəl] *n* эл. зажим, клемма, выход, вывод  
**thermal** ['θɜ:məl] *a* тепловой  
**tube** [tju:b] *n* 1. трубка; 2. электронная лампа; 3. электронно-лучевая трубка  
**valve** [vælv] электронная лампа  
**voltage** ['vəʊltɪdʒ] *n* напряжение тока  
**winding** ['waɪndɪŋ] *n* обмотка

## Unit 27

**amplifier** [ˌæmplɪfaɪə] *n* эл., рад. усилитель  
**capacitance** [kə'pæsɪtəns] *n* эл. емкость; емкостное сопротивление

**coat** [kəʊt] *v* покрывать, облицовывать  
**couple** ['kʌpl] *v* соединять  
**desire** [dɪ'zaɪə] *n* (сильное) желание



**desirable** *a* желательный  
**exist** [ɪg'zɪst] *v* существовать  
**extend** [ɪks'tend] *v* натягивать, простираться  
**gain** [geɪn] *n* усиление; коэффициент усиления  
**grid** *n* решетка (электронная), сетка  
**input** ['ɪnpʊt] *n* эл. входная мощность; вход; ввод  
**output** ['aʊtpʊt] *n* выход; выходные зажимы  
**performance** [pə'fɔ:məns] *n* характеристика  
**satisfactory** [sætɪs'fæktəri] *a* удовлетворительный  
**accordingly** [ə'kɔ:dɪŋli] *adv* соответственно  
**add** *v* 1. прибавлять, присоединять; 2. *мат.* складывать  
**additional** [ə'dɪʃənəl] *a* дополнительный

**approximate** [ə'prɒksɪmɪt] *a* приблизительный, близкий  
**avoid** [ə'vɔɪd] *v* избегать  
**bias** ['baɪəs] *n* отклонение, смещение  
**factor** ['fæktə] *n* коэффициент  
**load** [ləʊd] *n* нагрузка  
**prevent** [prɪ'vent] *v* предотвращать, препятствовать  
**resistance** [rɪ'zɪstəns] *n* сопротивление  
**impedance** [ɪm'piðəns] *n* полное сопротивление  
**repel** [rɪ'pel] *v* отталкивать, отражать  
**shield** [ʃɪld] *n* защита, закон  
**stage** [steɪdʒ] *n* фаза, период  
**suppress** [sə'pres] *v* подавлять  
to be of the order of быть в ... степени; составлять ... порядков  
**vice versa** ['vaɪsə'vɜ:sə] и наоборот

## Unit 28

**accidental** [ækstɪ'dentəl] *a* случайный  
**ancient** ['eɪnfənt] *a* древний  
**astonishment** [əs'tɒnɪʃmənt] *n* изумление  
**attempt** [ə'tempt] *n* попытка  
**calculation** [kælkju'leɪʃn] *n* вычисление, расчет  
**conclude** [kən'klʊd] *v* заключать, выводить заключение  
**discovery** [dɪs'kʌvəri] *n* открытие  
**indeed** ['ɪn di:d] *adv* в самом деле, действительно

**iron** ['aɪən] *n* хим. железо  
**needle** [ni:dl] *n* игла, стрелка  
**origin** ['ɔrɪdʒɪn] *n* происхождение  
**oscillation** [ɔsɪ'leɪʃn] *n* вибрация, колебание  
**pole** *n* полюс  
**pure** [pjʊə] *a* чистый, беспримесный  
**rotation** [rou'teɪʃn] *n* вращение  
**simplify** ['sɪmplɪfaɪ] *v* упрощать  
**strength** ['streŋθ] *n* техн. сила: прочность; сопротивление  
**sudden** [sʌdn] *a* внезапный, неожиданный

## Unit 29

**align** [ə'laɪn] *v* выстраивать в ряд  
**axis** ['æksɪs] *n* (pl. axes) ось  
**boundary** ['baʊndəri] *n* граница, предел  
**cancel (out)** ['kænsəl] *v* компенсировать(ся)  
**circular** ['sækjʊlə] *a* круговой, кольцевой

**correspond** [kə'res'pɒnd] *a* соответствовать  
**die** [daɪ] *v* умереть, скончаться;  
die out 1. вымирать; 2. заглотнуть  
**external** [eks'tɜ:nl] *a* наружный, внешний  
**favourably** ['feɪvərəblɪ] *adv* благоприятно

**loop** *n* петля

**opposite** ['ɒpəzɪt] *a* противоположный, обратный; *o. poles* разноименные полюса

**point** *n* точка, пункт

**precede** [pri'si:d] *v* предшествовать

**prefer** [pri'fɜ:] *v* предпочитать

**random** ['rændəm] *a* случайный, беспорядочный

**sample** [sɑmpl] *n* образец, проба

**sign** [saɪn] *n* знак

**with respect to** относительно чего-л.

**at the expense of** за счет чего-л.

## Unit 30

**arise (from)** [ə'raɪz] *v* возникать; появляться; являться результатом

**arrangement** [ə'reɪndʒmənt] *n* расположение

**designate** ['deɪzɪneɪt] *v* обозначать

**distribute** [dɪs'trɪbjʊt] *v* распределять, распространять

**entirely** [ɪn'taɪəli] *adv* полностью, всецело

**estimate** ['estɪmeɪt] *v* оценивать; *n* ['estɪmɪt] оценка

**even** [i:vən] *a* ровный, гладкий  
**nucleus** ['nju:kliəs] *n* (*pl. nuclei*) ядро

**radius** ['reɪdiəs] *n* (*pl. radii*) радиус

**reside** [rɪ'zaɪd] *v* проживать где-л.; находиться

**solid** *a* твердый, цельный; *s. state* твердое состояние; *n* твердое тело

**at least** по меньшей мере, по крайней мере

**in particular** в частности

## Unit 31

**advance** [əd'vɑ:ns] *v* выдвигать (*предположение, возражение*)

**concerning** [kən'sɜ:nɪŋ] *prep* относительно

**counter** ['kaʊntə] *a* противоположный, встречный

**decay** [di'keɪ] *v* распадаться; *n* распад

**deflect** [dɪ'flekt] *v* отклонять (ся)

**evidently** ['eɪdɪdəntli] *adv* очевидно, ясно

**foil** *n* фольга

**gold** [ɡəʊld] *n* золото

**none** [nʌn] *pron* никто, ничто, ни один

**notion** [nəʊʃn] *n* представление

**negligible** ['neglɪdʒəbl] *a* незна-

чительный, пренебрежимый, пренебрежимо малый

**nuclear** ['nju:kliə] *a* ядерный, содержащий ядро

**probe** *v* зондировать

**put forward** ['put 'fɔ:wəd] выдвигать (*идею, гипотезу*)

**roll** [rəʊl] *n* рулон, катушка

**scatter** ['skætə] *v* разбрасывать, рассеивать(ся)

**scattering** ['skætərɪŋ] *n* разброс, рассеяние

**supply** [sə'plaɪ] *v* снабжать

**throughout** [θru:'aʊt] *adv* во всех отношениях, повсюду

**whereas** [weə'gæz] *conj* тогда как, поскольку

**as a whole** в целом, в общем

**get through** пройти через что-л.

## Unit 32

**alter** ['ɔ:ltə] *v* изменять(ся), менять(ся)

**angle** ['æŋɡl] *n* угол

**dash** *n* черта, тире; штрих; *a dashed line* пунктирная линия

**flash** *n* вспышка, проблеск

**lead** [led] *n* хим. свинец

**reject** [rɪ'dʒekt] *v* отвергать

**slight** [slaɪt] *a* незначительный

**true** [tru:] *a* истинный, настоящий, подлинный

**target** ['tɑ:ɡɪt] *n* цель, мишень

**close to** рядом с, быть близким к чему-л.

**to be true of** быть справедливым относительно

**right through** прямо, через

Таблица нестандартных глаголов

Infinitive	Past Indefinite	Past Participle
be	was, were	been
become	became	become
begin	began	begun
blow	blew	blown
break	broke	broken
bring	brought	brought
build	built	built
buy	bought	bought
catch	caught	caught
choose	chose	chosen
come	came	come
cut	cut	cut
do	did	done
draw	drew	drawn
drink	drank	drunk
eat	ate	eaten
fall	fell	fallen
fight	fought	fought
feel	felt	felt
find	found	found
fly	flew	flown
forget	forgot	forgotten
get	got	got
give	gave	given
go	went	gone
grow	grew	grown
hang	hung	hung
have	had	had
hear	heard	heard
hold	held	held
keep	kept	kept
know	knew	known
lead	led	led
learn	learnt	learned
leave	left	left
let	let	let
lie	lay	lain
lose	lost	lost
make	made	made
mean	meant	meant
meet	met	met
put	put	put
read	read	read
ride	rode	ridden
ring	rang	rung
rise	rose	risen
run	ran	run

Infinitive	Past Indefinite	Past Participle
say see sell send set shine show sing sit sleep speak spend stand strike take teach tell think understand wake write	said saw sold sent set shone showed sang sat slept spoke spent stood struck took taught told thought understood woke wrote	said seen sold sent set shone shown sung sat slept spoken spent stood struck taken taught told thought understood woken written

## СОДЕРЖАНИЕ

Предисловие . . . . .	3
<b>I. Fundamental Course</b>	
<i>Unit One</i>	
Grammar: Структура безличного предложения . . . . .	7
<i>Unit Two</i>	
Grammar: Степени сравнения прилагательных и наречий . . . . .	14
<i>Unit Three</i>	
Grammar: Степени сравнения прилагательных и наречий (продолжение) . . . . .	19
<i>Unit Four</i>	
Grammar: Причастие прошедшего времени. Настоящее совер- шенное время . . . . .	25
<i>Unit Five</i>	
Grammar: Обзорные упражнения . . . . .	33
<i>Unit Six</i>	
Grammar: Страдательный залог. Возвратные и усилитель- ные местоимения . . . . .	38
<i>Unit Seven</i>	
Grammar: Обзорные упражнения . . . . .	45
<i>Test One</i> . . . . .	51
<i>Unit Eight</i>	
Grammar: Простое прошедшее время . . . . .	52
<i>Unit Nine</i>	
Grammar: Сопоставление времен Present Perfect и Past Indefi- nite . . . . .	59
<i>Unit Ten</i>	
Grammar: Простое будущее время . . . . .	66
<i>Unit Eleven</i>	
Grammar: Придаточные предложения условия и времени . . . . .	72
<i>Test Two</i> . . . . .	79
<i>Unit Twelve</i>	
Grammar: Способы выражения модальности в будущем вре- мени . . . . .	79
<i>Unit Thirteen</i>	
Grammar: Формы продолженного времени . . . . .	86
<i>Unit Fourteen</i>	
Grammar: Формы перфектного времени . . . . .	93
<i>Unit Fifteen</i>	
Grammar: Последовательность времен в английском языке . . . . .	100
<i>Unit Sixteen</i>	
Grammar: Типы специальных вопросов . . . . .	106
<i>Test Three</i> . . . . .	112

## II. Special Course

<i>Unit Seventeen</i>	
Grammar: Особенности употребления страдательного залога в английском языке по сравнению с русским языком . . .	113
<i>Unit Eighteen</i>	
Grammar: Инфинитив . . . . .	118
<i>Unit Nineteen</i>	
Grammar: Модальные глаголы . . . . .	126
Test Four . . . . .	132
<i>Unit Twenty</i>	
Grammar: Инфинитив в составе сложного дополнения . . . .	133
<i>Unit Twenty-One</i>	
Grammar: Инфинитив в составе сложного подлежащего . . .	140
<i>Unit Twenty-Two</i>	
Grammar: Обзорные упражнения . . . . .	148
Test Five . . . . .	154
<i>Unit Twenty-Three</i>	
Grammar: Причастие, его формы и синтаксические функции в предложении . . . . .	156
<i>Unit Twenty-Four</i>	
Grammar: Независимый причастный оборот . . . . .	163
<i>Unit Twenty-Five</i>	
Grammar: Причастие в составе сложного дополнения и в составе вводного члена предложения . . . . .	170
<i>Unit Twenty-Six</i>	
Grammar: Герундий . . . . .	176
<i>Unit Twenty-Seven</i>	
Grammar: Сложные члены предложения с герундием . . . .	184
<i>Unit Twenty-Eight</i>	
Grammar: Специальные случаи употребления герундия . .	189
Test Six . . . . .	196
<i>Unit Twenty-Nine</i>	
Grammar: Сослагательное наклонение . . . . .	197
<i>Unit Thirty</i>	
Grammar: Условные предложения . . . . .	205
<i>Unit Thirty-One</i>	
Grammar: Инверсия в условных предложениях . . . . .	212
<i>Unit Thirty-Two</i>	
Grammar: Употребление сослагательного наклонения . . . .	218
Test Seven . . . . .	224
Laboratory Works . . . . .	227
Keys . . . . .	290
Phonetics in Tables . . . . .	292
Grammar in Tables . . . . .	295
Active Vocabulary . . . . .	307