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АНГЛИЙСКИЙ ЯЗЫК

Некоторые трудности перевода с английского языка на русский литературы по специальности «Промышленная теплоэнергетика»

Учебно-методическое пособие

Санкт-Петербург
2014

МИНИСТЕРСТВО ОБРАЗОВАНИЯ И НАУКИ РОССИЙСКОЙ ФЕДЕРАЦИИ
ФЕДЕРАЛЬНОЕ ГОСУДАРСТВЕННОЕ БЮДЖЕТНОЕ
ОБРАЗОВАТЕЛЬНОЕ УЧРЕЖДЕНИЕ
ВЫСШЕГО ПРОФЕССИОНАЛЬНОГО ОБРАЗОВАНИЯ
«САНКТ-ПЕТЕРБУРГСКИЙ ГОСУДАРСТВЕННЫЙ
ТЕХНОЛОГИЧЕСКИЙ УНИВЕРСИТЕТ
РАСТИТЕЛЬНЫХ ПОЛИМЕРОВ»

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Настоящее учебно-методическое пособие предназначено для студентов факультета промышленной теплоэнергетики и имеет целью развитие навыков чтения и перевода специальной литературы.

Пособие содержит грамматические таблицы, охватывающие основные грамматические явления, и упражнения для усвоения соответствующих правил.

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ПРЕДИСЛОВИЕ

Пособие посвящено повторению и освоению наиболее распространённых грамматических структур, встречающихся в литературе по промышленной энергетике и вызывающих трудность при переводе. Рассматриваемые грамматические структуры представлены в виде таблиц. Особенности их перевода связаны с морфологической характеристикой и синтаксической функцией. Упражнения построены на лексике по специальности, состоят из предложений, заимствованных из соответствующей литературы.

Прилагаемый словарь содержит слова, встречающиеся в упражнениях в их контекстуальном значении, и облегчает работу над переводом.

Таблица 1

Времена глагола в действительном залоге

Время		Утвердительная форма	Вопросительная форма	Отрицательная форма
Simple	Present (настоящее)	I ask. – *Я* спрашиваю. He (she) ask**s.** – Он (она) спрашивает. We (you, they) ask. – Мы (вы, они) спрашивают.	Do I ask? Does he (she) ask? Do we (you, they) ask?	I do not ask. He (she) do**es** not ask. We (you, they) do not ask.
	Past (прошедшее)	I ask**ed.** – *Я* спросил. He (she) ask**ed.** – Он (она) спросил(а). We (you, they) ask**ed.** – Мы (вы, они) спросили.	Did I ask? Did he (she) ask? Did we (you, they) ask?	I did not ask. He (she) did not ask. We (you, they) did not ask.
	Future (будущее)	I shall ask. – *Я* спрошу. He (she) will ask. – Он (она) спросит. We shall ask. – Мы спросим. You (they) will ask. – Вы спросите (они спросят).	Shall I ask? Will he (she) ask? Shall we ask? Will you (they) ask?	I shall not ask. He (she) will not ask. We shall not ask. You (they) will not ask.

Продолжение табл. 1

Время		Утвердительная форма	Вопросительная форма	Отрицательная форма
Continuous	Present (настоящее)	I am asking. – Я спрашиваю. He (she) is asking. – Он (она) спрашивает. We (you, they) are asking. – Мы (вы, они) спрашиваем (-ете, -ют).	Am I asking? Is he (she) asking? Are we (you, they) asking?	I am not asking. He (she) is not asking. We (you, they) are not asking.
	Past (прошедшее)	I was asking. – Я спрашивал. He (she) was asking. – Он (она) спрашивал(а). We (you, they) were asking. – Мы (вы, они) спрашивали.	Was I asking? Was he (she) asking? Were we (you, they) asking?	I was not asking. He (she) was not asking. We (you, they) were not asking.
	Future (будущее)	I shall be asking. – Я спрошу (буду спрашивать). He (she) will be asking. – Он (она) спросит (будет спрашивать). We shall be asking. – Мы спросим (будем спрашивать). You (they) will be asking. – Вы (они) спросят (будут спрашивать).	Shall I be asking? Will he be asking? Shall we be asking? Will you (they) be asking?	I shall not be asking. He (she) will not be asking. We shall not be asking. You (they) will not be asking.

Окончание табл. 1

Время		Утвердительная форма	Вопросительная форма	Отрицательная форма
Perfect	Present (настоящее)	I have asked. – Я спросил. He (she) has asked. – Он (она) спросила. We (you, they) have asked. – Мы (вы, они) спросили.	Have I asked? Has he (she) asked? Have we (you, they) asked?	I have not asked. He (she) has not asked. We (you, they) have not asked.
	Past (прошедшее)	I had asked. – Я спросил. He (she) had asked. – Он (она) спросила. We (you, they) had asked. – Мы (вы, они) спросили	Had I asked? Had he (she) asked? Had we (you, they) asked?	I had not asked. He (she) had not asked. We (you, they) had not asked.
	Future (будущее)	I shall have asked. – Я спрошу. He (she) will have asked. – Он (она) спросит. We shall have asked. – Мы спросим. You (they) will have asked. – Вы (они) спросите.	Shall I have asked? Will he (she) have asked? Shall we have asked? Will you (they) have asked?	I shall not have asked. He (she) will not have asked. We shall not have asked. You (they) will not have asked.

Упражнение 1

Вспомните три основные формы некоторых неправильных глаголов.

to be – was, were – been – быть, являться
to become – became – become – становиться
to begin – began – begun – начинать
to come – came – come – приходить
to do – did – done – делать
to fall – fell – fallen – падать, снижаться
to find – found – found – находить
to fly – flew – flown – летать
to get – got – got – получать; становиться
to give – gave – given – давать
to go – went – gone – идти, уходить
to have – had – had – иметь
to learn – learnt – learnt – учиться, узнавать
to leave – left – left – оставлять, уходить
to make – made – made – делать
to say – said – said – сказать
to see – saw – seen – видеть
to speak – spoke – spoken – говорить
to take – took – taken – брать
to tell – told – told – сказать, говорить
to think – thought – thought – думать

Упражнение 2

Поставьте глаголы в скобках в Present Simple. Предложения переведите.

1. The department of heat-power engineering (to train) qualified heat-power engineers capable to operate the most complicated up-to-date technological processes.

2. The first-year students (to have) lectures, classes and (to work) in the laboratories.

3. The students (to take) notes at the lectures as it will help them to read up for their examinations.

4. Water (to circulate) from the steam drum to the lower drum through six rows of tubes and the comparatively low gas temperature results.

5. The steam (to pass) on its way through the turbine.

6. Simple impulse turbine (to have) a considerable number of pressure stages.

7. The engineer closely (to examine) the results of the operation.

8. The arrangement of the tubes (to permit) to reduce the length of the turbine to be reduced.

Упражнение 3

Поставьте глаголы в скобках в Past Simple. Предложения переведите.

1. Last year I (graduate) from the secondary school and I (enter) this university.

2. I (get) interested in mathematics when I (be) at school.

3. Yesterday it (take) me an hour to get to the university. I (not miss) the first lecture and (arrive) in time.

4. For three days they (carry out) this interesting work.

5. They speak English rather well, but last year they (speak) poorly.

6. Modern hydroelectric power stations (begin) to use water power to turn the machines which generate electricity.

7. The construction of the steam engine (involve) great difficulties.

8. A boiler feed pump (deliver) the water to economizer.

9. As furnace input (increase), the entire floor was water-cooled.

10. They (provide) the boiler with a steel frame and with brick setting.

Упражнение 4

Поставьте глаголы в скобках в Future Simple. Переведите предложения.

1. My elder sister (graduate) from our university next year. Her speciality (be) engineer economist.

2. We usually take notes at the lectures as it (be) easier to read up for exams.

3. We (have) our exams in January and then we (have) vacation.

4. Tomorrow the lecture on physics (begin) at 9.30.

5. The design of machines for using water power greatly (depend) on the nature of the available water supply.

6. In order to keep surface to a minimum and thus reduce the cost of the superheater, it should be located where high-temperature gases (flow) around the tubes.

7. In conventional boiler the theoretical minimum flue-gas temperature (be) the saturation temperature of the water in the boiler tubes.

8. The expansion of the steam (take place) in the fixed nozzle passages.

9. Because of the great efficiency of large units turbine manufacturers (continue) to raise the upper limit of speed and capacity.

10. The water level in the drum (permit) separation of the steam from the water.

Упражнение 5

Поставьте глаголы в скобках в Present Continuous или Past Continuous. Учтите, что времена этой группы показывают длительность действия (действие как процесс). Переведите предложения.

1. Electronics (become) increasingly important in all branches of production.
2. The Russian scientists (solve) successfully important problems in mathematics, chemistry, electronics, medicine and biology.
3. During the flight the astronauts (observe) the earth and the sky.
4. During the work on his discovery the scientist observed that a small electric current (flow). He rightly concluded that some electrons (move) through the vacuum.
5. The spacecraft (circle) the globe when the newspapers all over the world began to comment its flight.
6. Within several years nuclear power plants (generate) great amount of electrical power.
7. The time will come when spacecrafts (fly) to the planets in the solar system.
8. Large installations with mighty turbogenerators (operate) at a number of thermal power-stations in this country.
9. One of the world's largest heating-and-power installations (operate) at the Moskovskaya thermal power-station-25.
10. Let us suppose now that a small current (flow) along a thick metal conductor.
11. Hydropower engineering (develop) mainly by constructing high capacity stations integrated into river systems known as cascades.

Упражнение 6

Поставьте глаголы в скобках в Present Perfect. Учтите, что это время употребляется для выражения действия, которое уже закончилось к данному моменту, но связано с настоящим. Эта связь часто поддерживается словами **never** – никогда, **already** – уже, **since** – начиная с, **lately** – недавно, **this year/month/week** – в этом году/месяце/на этой неделе и т. п. Переведите предложения.

1. This year I (enter) the Saint-Petersburg state technological university of plant polymers.

2. They (solve) recently many important problems in the field of artificial radioactivity.

3. It is necessary to point out that the power machine building industry (start) to manufacture greater capacity installations for thermal power stations.

4. This method (find) universal recognition and application in a short period of time.

5. These countries (develop) large hydroelectric power stations for the past years.

6. If you (not see) a power station it will be difficult for you to imagine its enormous size.

7. Steam must be condensed after it (pass) through the turbine, and this requires large quantities of cooling water.

8. Science (solve) a lot of important problems and will solve still more in future.

9. They (solve) recently many important problems in the field of radioactivity.

10. They (complete) already their investigation.

Упражнение 7

Поставьте глаголы в скобках в Past Perfect. Учтите, что это время употребляется для выражения действия в прошлом, которое совершилось ранее другого действия в прошлом. Переведите предложения.

1. My friend told me that he (see) already the new film.
2. Another problem which he (solve) by that time was important and interesting for researchers.
3. When he came into the laboratory, they (finish) already their experiment.
4. He (collect) some information about modern discoveries in the branch of biology by the end of last year.
5. After Becquerel (make) a great number of experiments, he discovered the phenomenon of radioactivity.
6. In 1898 the Curies discovered a new substance which they (receive) during their experiment. They found that it was much more active.
7. After we (construct) a number of new power stations, our country got cheap electric power.
8. By 1910 the steam turbine (replace) the reciprocating steam engine in the central station industry.

Упражнение 8

Поставьте глаголы в скобках в нужную форму. Переведите предложения.

1. Every day he (attend) lectures on mathematics.
2. Yesterday they (not work) in the laboratory as there was no electricity.

3. He (pass) his exams well, and now he (rest).

4. They (get) good results, which helped them in their work.

5. Many students (graduate) from the university last year.

6. When they (heat) water to 100 degrees it (begin) to boil.

7. Next year he (graduate) from the university and (leave) Saint-Petersburg for his native town.

8. They (use) this new device in their work soon.

9. Recently scientists and engineers (find) an increasing number of ways in which electronic conduction can be guided and controlled for useful purposes.

10. Interplanetary travel (become) a reality in our epoch.

11. The future of astronautics (be) a logical continuation of what has already been achieved.

12. The development of science and technology (open up) infinite possibilities for conquering the forces of nature.

13. The increase of the amount of air supplied to the cylinder (permit) burning more fuel and obtaining more power from a given size of cylinder.

14. The students (read up) for examinations.

15. Nuclear power stations on floating platforms (produce) not only great amounts of fresh water from the sea, but (help) on weather control.

Таблица 2

Страдательный (пассивный) залог

Образуется: глагол to be (в соответствующем времени) + Participle II

Правила и способы перевода	Пример	Перевод
1. Страдательный залог показывает, что действие глагола-сказуемого направлено на лицо или предмет, выраженный подлежащим. В ряде случаев подлежащее переводится прямым или косвенным дополнением и ставится, соответственно, в форме винительного или дательного падежа.	**He** was given a task.	**Ему** дали задание.
	We were informed that a new idea had been advanced recently.	**Нас** информировали, что новая идея была выдвинута недавно.
2. Если после глагола в пассиве есть дополнение с предлогом **by** или **with**, то оно указывает, кем или чем производится действие. Предлоги переводятся «путём», «при помощи», «посредством» либо соответствуют творительному падежу и не переводятся.	Steam is produced **by three stream generators**.	Пар вырабатывается **тремя парогенераторами** (**при помощи** трёх парогенераторов).
	The boiler is supplied **with steam**.	Котёл снабжается **паром**.

Продолжение табл. 2

Правила и способы перевода	Пример	Перевод
3. Сочетанием глагола «быть» с кратким страдательным причастием с суффиксами -н- или -т-. Глагол «быть» в настоящем времени опускается.	The turbine is built by the workers. are built was built were built has been built have been built shall/will be built will be built	Турбина построена рабочими. построены была построена были построены была построена были построены будет построена будут построены
4. Глаголом на **-ся** в соответствующем времени, лице и числе.	The steam is being generated in the boiler. was being generated	Пар образуется в котле. образовывался
5. Глаголом действительного залога в 3-м лице множественного числа, в неопределённо-личном предложении.	The fuel is burned in the furnace. was burned will be burned	Топливо сжигают в топке. сжигали будут сжигать

Окончание табл. 2

Правила и способы перевода	Пример	Перевод
6. Глаголы с относящимся к ним предлогом, которые переводятся также глаголами с предлогом: to depend on – зависеть от to insist on –настаивать на to look at – смотреть на to rely on – опираться на to speak of (about) – говорить о to refer to – ссылаться на, называть to deal with – иметь дело с и др. переводятся глаголами в неопределённо-личной форме, причём соответствующий русский предлог ставится перед английским подлежащим.	The new power plant is much spoken **about**.	**О** новой электростанции много говорят.
7. Глаголы без предлогов, которые переводятся глаголами с предлогом: to affect – влиять на to answer – отвечать на to influence – влиять на to follow – следовать за и др. переводятся глаголами в активном залоге или неопределённо-личной форме, причём соответствующий русский предлог ставится перед английским подлежащим.	The conditions of work are greatly affected by the steam pressure.	**На** условия работы сильно влияет давление пара.

Упражнение 1

Переведите предложения, учитывая, что глагол-сказуемое стоит в пассивном залоге.

1. The attraction between molecules is being neglected.

2. The positive particle in the nucleus of the atom was given the name of "proton".

3. Some pressing problems will be discussed at the symposium.

4. Any deduction is usually preceded by a number of experiments and observations.

5. The gas turbines are used in such applications as electric power generation, natural gas transmission pumping and locomotives.

6. The high-pressure, high-temperature steam is expanded in a steam turbine which is generally connected to an electric generator.

7. The furnaces were first partly, then completely water-cooled to overcome the slagging of the boiler surfaces.

8. Some boilers are bottom supported, and others are suspended from the upper drums.

9. The passage of the water through small diameter tubes in the furnace is followed by its conversion into steam.

10. The increase of overall efficiency of the cycle is affected by efficiency of the feedwater heater.

11. The amount of steam pressure is influenced by the stress limitations of the heater shell.

12. The reduction of the amount of boiler feedwater is affected by condensing the steam in order that it can be returned to the boiler.

13. The choice of material for condenser tubes is influenced by cooling water, corrosive in nature.

14. Expansion and contraction of the condenser shell may be taken care of by providing an expansion joint in the shell wall at one end.

15. If noncondensable gases are permitted to collect in the condenser, the vacuum in the condenser will decrease.

16. A large energy drop can be dealt with in the first pressure stage of the impulse turbine.

Упражнение 2

Переведите предложения, учитывая, что глагол-сказуемое стоит в активном или пассивном залоге.

1. The stoker design aims at different purposes: maximum rates of burning, highest continuous efficiency and the unlimited choice of fuels.

2. Proper treatment of the coal at the correct time is realized on its passage through the furnace.

3. All pulverized coal-fired furnaces are partially or completely water-cooled.

4. The feedwater entering the boiler at high temperature affects the reduction of temperature stresses within the boiler.

5. The design of heat exchangers is influenced by different functions which they perform and different conditions under which they operate.

6. If the furnace region is completely surrounded by water-cooled surfaces, the furnace is internally fired.

7. The turbine efficiency is adversely affected by a decrease in the pressure drop through the turbine.

8. The reduction of the size and the cost of the turbine are influenced by the high rotative speeds with relatively little vibration.

9. The construction of the steam engine involved great difficulties.

10. The water was delivered to economizer by a boiler feed pump.

11. The rotation of the wheels is affected by the steam which impinges on the wheel blades.

12. The high pressure drives the piston downward and rotates the shaft.

13. In the impulse turbines the expansion of the steam is carried out on stages which are referred to as "pressure stages".

14. The number of pressure stages in the impulse turbines is affected by the available heat drop.

15. The nuclear reactor, heat exchanger and pump replace the fuel burning equipment and the steam generator of the conventional steam power plant.

16. In the reaction turbines expansion in the stationary and rotating passages is followed by development of pressure at the entrance to the rotor blades.

Таблица 3

Модальные глаголы

Модальные глаголы и их эквиваленты	Значение	Времена		
		Present	Past	Future
can to be able to	могу, умею	can work am (is, are) able to work – могу /может /умеет работать	could work was (were) able to work – мог /умел работать	— shall (will) be able to work – сможет / сумеет работать
may to be allowed to	могу, можно, разрешено	may work am (is, are) allowed to work – могу/ можно/ разрешено работать	might work was (were) allowed to work – мог / было разрешено работать	— shall (will) be allowed to work – смогу / будет можно работать
must to have to	должен, надо, нужно	must work have (has) to work – должен / приходится работать	— had to work – должен был работать	— shall (will) have to work – должен буду работать
to be to	должен, предстоит, (обусловлено заранее намеченным планом)	am (is, are) to work – должен работать	was (were) to work – должен был работать	—
should + инфинитив без “to”	должен, должен бы, следует, следовало бы (наставление)	This equipment should be handled carefully. – С этим оборудованием следует обращаться осторожно.		
ought to	должен, следует (совет, моральный долг)	The results of this experiment ought to be checked. Результат этого эксперимента надо проверить.		

Упражнение 1

Переведите предложения, обращая внимание на эквиваленты модальных глаголов.

1. They were allowed to provide us with all the necessary data.

2. The engineer will be able to discuss this problem with you next week.

3. We are able to obtain various fuels from the crude oil.

4. Before the designer begins his work he is to know the specifications of the future device.

5. You are allowed to use this computer for calculations which are necessary to you.

6. You have not to put so much fuel into the boiler.

7. In order to raise the productivity of labour we are to replace old machines with new ones.

8. On Monday he has to get up very early as his lectures begin at 8 o'clock.

9. You will have to come here again.

10. The student had to be sent to the hospital as he was badly hurt.

Упражнение 2

Переведите предложения.

1. Steam turbines may be broadly grouped into three types in accordance with the conditions of operation of the steam on the rotor blades.

2. It should be noted that the superheaters and reheaters occupy a major part at the total volume of the installation.

3. The length of the turbine is to be reduced.

4. All the heat must be transferred through the heating surfaces to reach water.

5. It should be noted that the hot end of the superheater is next to the furnace.

6. The steam has to pass on its way through the turbine.

7. Superheaters are to be classified as convection or radiant superheaters.

8. The feedwater can be converted into saturated steam of high quality of some desired pressure.

9. To maintain a high heat transfer for the heater the water velocity should be high.

10. The feedwater is able to be converted into saturated steam.

11. After the convection the heated or cooled fluid may flow to some other region.

12. A power plant has to be built on this river.

13. The expansion of the steam must take place in the fixed nozzle passages.

14. The products of combustion have to be cooled sufficiently before they enter the superheater tubes.

15. The temperature of cooling water has to vary only with atmospheric conditions.

16. The noncondensable gases being highly corrosive have to be removed from the condenser.

17. A power plant cycle has to convert a portion of the stored energy of a fuel into work.

18. The steam generation unit has to add energy to the fluid in the form of heat transfer from the burning fuel.

19. There may be two, three of four drums and one lower drum at the top of the boiler.

20. The bent tube allows great flexibility in design, particularly with regard to drum arrangement, as it may enter the drum radially.

21. Generally the pressure in a furnace should be slightly less than atmospheric pressure.

22. Electricity can be used to make magnets. One has to place a steel bar inside a wire coil and pass direct current through the coil.

23. The spring supports have to permit the condenser to rise or fall without overloading the turbine exhaust line.

Таблица 4

Глагол “to be”

Функция в предложении и значения	Примеры	Перевод
1. Смысловой глагол **«быть», «являться», «находиться».**	The fuel-injection system **is** an integral part of the thermal engine.	Система введения топлива **является** неотделимой частью теплового двигателя.
2. Вспомогательный глагол для образования сложных глагольных форм (группа времен Continuous, страдательный залог). Самостоятельно не переводится.	This material **is offering** high resistance to the flow of current. The lecture **was delivered** yesterday.	Этот материал **оказывает** высокое сопротивление потоку тока. Лекцию **прочитали** вчера.
3. Модальный глагол (в сочетании с инфинитивом с частицей “to”) со значением долженствования.	A boiler **is to generate** steam.	Котёл **должен вырабатывать** пар.
4. Конструкция **“there be”** играет в предложении роль сказуемого и переводится **«есть», «имеется», «существует»**.	In recent years **there has been** a great increase in size, capacity and output of Russian turbines.	В недавние годы **было** (**произошло**) большое увеличение в размерах, объёме и производительности российских турбин.

Упражнение

Переведите предложения, учитывая разные функции и перевод глагола "to be".

1. Most steam power plants of large size are now being built for operation at steam pressure of 1500 to 2400 psi, and in some plants more high pressures are being used.

2. Turbine generator units of these capacities are being supplied with steam from a single steam generating unit.

3. These engineers are looking for new methods of cooling materials.

4. Some of the boiler water is blown to a sewer, carrying out of the system the impurities that are coming into the boiler.

5. The aim of many early experimenters was the production of light sources small enough to be used in the house.

6. The fundamentals of electricity are the fundamentals of electronics, both are branches of physics.

7. Industrial power plants are frequently noncondensing plants because large quantities of low pressure steam are required for manufacturing operations.

8. A superheater is a coil of tubing surrounded by the hot products of combustion.

9. If combustion is to be complete in a furnace of economical size, turbulence is essential.

10. As the pressure increases, greater tube spacing is required and the tubes are to be smaller in diameter.

11. The furnace walls are to be covered with boiler tubes either partially or fully.

12. The jet condenser is to be used for small prime mover installations.

13. The aim of a circulating pump in a condenser is to circulate the cooling water.

14. In many cases the air circulation is inadequate, and mechanical equipment is to be built to supplement the natural circulation.

15. There are two types of water turbines: the reaction turbines and the impulse turbines.

16. The volute shape of the pump casing is to permit flow with minimum friction to convert a part of velocity head into static head.

17. Besides the principal components of a modern thermal power-station there are many additional parts of the plant.

18. There is a danger of corrosion in the tube due to low flue gas temperature.

19. If the source of cooling water is a lake or a river, there is no need for water conservation.

20. In this superheater there will be a decrease in steam pressure due to friction in the superheater tubing.

21. Conduction occurred in liquids and gases at rest, that is, where there was no motion of the molecules.

Таблица 5

Глагол “to have”

Функция в предложении и значение	Примеры	Перевод
1. Смысловой глагол **«иметь»**	A steam generator **has** a series of heat exchangers.	Парогенератор **имеет** ряд теплообменников.
2. Вспомогательный глагол для образования сложных форм глагола (группа времен Perfect). Самостоятельно не переводится.	This method **has found** universal recognition.	Этот метод **нашел** всеобщее признание.
3. Модальный глагол (в сочетании с инфинитивом с частицей “to”) со значением долженствования.	They **have to** use this new method in their research worn.	Они **должны** использовать этот новый метод в своем исследовании.

Упражнение

Переведите предложения, учитывая разные функции и перевод глагола "to have".

1. The plungers have a characteristic forward and upward motion.

2. Combustion in the cyclone furnace is complete and has practically no carbon loss.

3. Series of lectures on new types of turbines have been delivered at our research centre this year.

4. The coal has to be taken from the bunkers to the feeding hoppers on the boilers.

5. An extensive program of theoretical research and experimentation has been carried out before the first departments of the mill were built.

6. Long tubes closely spaced have to maintain high air and gas velocities.

7. Condensate from the turbine condenser has to be used as cooling water to condense the steam in the ejector.

8. A chain-grate stoker has a moving grate in the form of a continuous chain.

9. Polzunov's engine has been working from August to November 1766.

10. One of the most important problems the engineers have to study is the efficient and controlled transfer of fluids from one point to another.

11. Boilers that have the hot products of combustion in the tubes and water outside the tubes are called firetube boilers.

12. One has to maintain the gas at a low temperature in order to permit an increase in the mass rate of flow with corresponding reduction in size and horsepower.

13. The horizontal straight tube boiler is simple in operation and has low draft loss.

14. Since the economizer has water in the tube and dry gas around the tube, the major resistance to heat transfer is on the gas side.

15. A small stoker fired steam generating unit has a capacity of 72,500 lb. of steam per hr.

16. Because of variable or seasonable supply of gaseous fuels, combination burners have been developed to permit the simultaneous burning of the available gas together with pulverized coal or oil.

17. Among the advantages of this type of generators is the fact that it does not have to be synchronized.

18. The condensate pump has to return the condensate to a surge tank where it can be reused as boiler feedwater.

19. The atmospheric relief valve has to relieve the pressure in the condenser in case the condenser or auxiliaries do not function properly.

20. The turbine operating at high speed has the following advantages: lighter weight, more compactness, great suitability for high-pressure, high-temperature operation.

21. Heat has been defined as energy that is being transferred across the boundaries of a system because of a temperature difference.

22. The simplest type is the single-cylinder turbine, for it is compact and has few parts.

23. During the evolution of the boiler as a heat producer many new shapes and designs have appeared.

24. Small turbines, varying in size from a few horsepower to several thousand horsepower have to be used, wherever steam is readily available at low cost or where exhaust steam is needed.

25. Liquid, gaseous and vapour states of fluid have a tendency to move because of natural forces.

Таблица 6

Степени сравнения прилагательных и наречий

Положительная степень	Сравнительная степень	Превосходная степень
1. Односложные прилагательные		
long – длинный	longer – длиннее	the longest – самый длинный
2. Многосложные прилагательные		
important – важный	more important – более важный less important – менее важный	the most important – самый важный the least important – наименее важный
Сравнительные союзы		
than – чем: **You are older than me.** – Ты старше **меня**. (Ты старше, **чем я**.) **as…as...** – такой же... как... **not so...as...** – не такой... как... **the…the…** – чем…, тем...: **The more, the better – чем больше, тем лучше.**		
3. Исключения		
good хороший well хорошо	better – лучше	the best – самый лучший, лучше всего
bad плохой badly плохо	worse – хуже	the worst – хуже всех, хуже всего
much, many много	more – больше	the most – наибольший, больше всего
little – маленький, мало	less – меньше	the least – наименьший, меньше всего

Most перед существительным – «большинство», «большая часть»: most of the students – большинство студентов.

Упражнение

Переведите предложения, учитывая особенности перевода степеней сравнения прилагательных и наречий.

1. The thermonuclear reactors absorb more energy than they generate.

2. The more satisfactory ignition may be ensured, the better.

3. The coals of this type are most satisfactorily burned on chain-grate stoker.

4. The more space is provided by the furnace, the less unburned fuel will escape from it.

5. Most fuel is burned near the exit from the furnace.

6. The better the equipment suits to the type of the fuel, the more its efficiency will be.

7. Man is using more and more the organic fuel sources.

8. The lower the combustible gases are cooled, the worse they will burn.

9. The pressure in the furnace was slightly less than the atmospheric pressure.

10. The greater is the mixing of oxygen with combustible gases, the more is the increase of combustion rate.

11. The thinner the wire, the greater the developed heat. On the contrary, the larger the wire, the more negligible is the heat produced.

12. In order to produce electricity under the most ecological conditions, the generators must be as large as possible.

13. In case that the number of turns (виток) on the secondary winding is greater than those on the primary, the output voltage is larger than the input voltage and the transformer is called a step-up-transformer.

14. In some countries, such as Norway, Sweden and Switzerland more electric energy is produced from water power than from steam.

15. Cleaning is easier when the gases pass through the tubes.

16. In general, most of the steam is generated is the furnace wall tubes, because they can absorb radiated energy from the high temperature flame.

17. Physics is the most precise and mathematical science.

18. The planet Mars is much less massive than the Earth but its density is greater than that of the crustal rock of the Earth.

Таблица 7

Многофункциональное слово “one”

Функция, значение	Примеры	Перевод
1. Числительное «один», «одна», «одно».	This power plant is **one** of the oldest.	Эта электростанция – **одна** из старейших.
2. Формальное подлежащее в неопределенно-личных предложениях, самостоятельно не переводится.	**One knows** (известно) **One believes** (считают) **One can** (можно) expect **One must** (нужно) expect **One may** (можно) expect } that this mill makes good profits.	Известно, Считают, Можно ожидать, Нужно ожидать, Можно ожидать, } что этот завод имеет большие прибыли.
3. Слово-заменитель. Переводится тем существительным, которое заменяет, или опускается в переводе.	The new way of transporting fuel differs from the old **one**.	Новый путь перевозки топлива отличается от старого (**пути**).

Упражнение

Переведите предложения, учитывая особенности перевода многофункционального слова "**one**".

1. At the seminar he solved his problem and the one of his friend.
2. To measure the temperature one uses the thermometer.
3. The problem was a very difficult one.
4. One can say that heat is the form of energy.
5. Unknown and undiscovered phenomena can be found more effective than familiar ones.
6. One should pay attention to his work.
7. This component is similar to that one.
8. One must develop this method.
9. One might mention two kinds of mechanical energy: potential and kinetic.
10. The assertion is one which can be justified by a detailed proof.
11. Fahrenheit's construction is the one often used for the household thermometres.
12. One of the most important problems the engineer has to take into consideration is the efficient and controlled transfer of fluids from one point to another.
13. One can cool the exhaust gases leaving the turbine in the regenerator before they are discharged to the atmosphere.
14. This industrial nuclear power station was put into operation two years earlier than the British one and a half year earlier than the American nuclear power station.
15. At present gas is one of the most important fuels and our basic source of energy.
16. A noncondensing plant discharges the steam from the prime mover at an exhaust pressure equal or greater than atmospheric one.

Таблица 8

Многофункциональные слова “that”, “those”

Функция, значение	Примеры	Перевод
1. Местоимения «этот», «эти», «тот», «те».	**Those** fuels are the most popular in our region.	**Эти** виды топлива наиболее популярны в нашем районе.
2. Слова-заменители. Переводятся тем существительным, которое они заменяют, или опускаются при переводе.	The efficiency of the old turbine is low compared with **that** of our new plant.	Производительность старой турбины низкая по сравнению с **производительностью** турбины нашей новой электростанции.
3. “that” – союзное слово «который».	The new turbine **that** was installed in our plant is efficient.	Новая турбина, **которая** была установлена на нашей электростанции, эффективна.
4. “that” – союз «что», «чтобы».	One can say **that** this fan is the most useful.	Можно сказать, **что** этот вентилятор самый нужный.
5. Часть выделительной конструкции «**It is... that/which/who...**». Переводится «именно», «это» и т. д.	**It was** in our laboratory **that** the new experiment was carried out.	**Именно** в нашей лаборатории провели новый эксперимент.

Упражнение

Переведите предложения, учитывая особенности перевода многофункциональных слов "**that/those**".

1. We used materials that contained lead.

2. It is now generally recognized: one of the most important problems of modern natural sciences is that of photosynthesis.

3. The sun's mass is 750 times that of all the planets together.

4. If the steam generating unit is a boiler only, the steam that it deliveries will be wet.

5. Theory alone left Lomonosov dissatisfied, he knew by experience that it was useless and unreliable if it did not find practical application.

6. It is the ash covering the surface of the stoker that acts as protective blanket.

7. It is the difference in density or specific weight of steam and water that makes the steam rise through the water in a boiler.

8. It is the heat exchanger that removes the energy absorbed by the engine from the cooling water.

9. The electron temperature is much greater than that of the gas as a whole.

10. The diameter of Neptune is four times greater than that of the Earth.

11. Molecules moving from hot regions to cool carry more energy than those moving in the reverse direction.

12. The technique used has some advantages over that suggested by Palm.

13. The results are in good agreement with those calculated from the mobility data of Green.

14. Carbon dioxide cannot support life; its properties are different from those of the oxygen which it contains.

15. It is the axial-flow fan that occupies a small space, that is light in weight, easy to install and includes large volumes of air.

Таблица 9

Многофункциональное слово “it”

Функция, значение	Примеры	Перевод
1. Личное местоимение «он», «она», «оно» (заменяет неодушевленное существительное).	Natural gas is used for steam generating. **It** also burns extremely in coal and oil fired units.	Природный газ используется для образования пара. **Он** также широко применяется в агрегатах, работающих на угле и нефти.
2. Указательное местоимение «это» (заменяет предыдущее предложение).	The temperature is rising slowly. **It** means that…	Температура поднимается медленно. **Это** означает, что…
3. Формальное подлежащее безличного предложения. Самостоятельно не переводится.	**It** is impossible **It** is important **It** is expected **It** is common practice } to use this fuel.	Невозможно Важно Ожидается Обычно принято } использовать это топливо (использование).
4. Формальное дополнение после некоторых глаголов. Самостоятельно не переводится.	The method makes **it** possible to obtain good productivity.	Метод делает возможным получение хорошей производительности.
5. Часть выделительной конструкции **“it is…that (which)”.** Переводится «именно», «это» и т.д. (См. табл. 8).	**It is** at our plant **that** the new turbine was installed. **It was** not until 1950 **that** the new equipment entered into practice.	**Именно** (**это**) на нашей электростанции установили новую турбину. **Только** в 1950 году новое оборудование вошло в употребление.

Упражнение

Переведите предложения, учитывая особенности перевода многофункционального слова "**it**".

1. It is copper which is the most widely used conductor.

2. The cyclone furnace is adjunct (зд. помощник) to the boiler circulation system. It is attached to the steam generating unit.

3. It is only recently that ways have been found for synthesizing this material.

4. It is our students that work at this power plant.

5. It is necessary to decompose these substances.

6. Electric current finds its most important use in industry. It finds wide application at every mill and factory. As for electric crane, it can easily lift objects weighing hundreds of tons.

7. The Newcomen steam engine was invented in 1705. It was fairly well developed later and for 50 years remained in extensive use.

8. It is not necessary to pulverize the coal in the cyclone furnace.

9. It is well known that electric current is necessary for everyday life.

10. It is the temperature of gas supplied to the turbine and the pressure ratio that influence the efficiency of a simple gas-turbine power plant.

11. It is known that some hypotheses were put forward in the last decade.

12. It is believed the method described should be of most utility in the determination of these phenomena types.

13. When dealing with a gas it is common practice to consider it under a pressure of 1 atmosphere.

14. The law makes it easy to understand the relation of two values.

15. Rutherford's picture of an atom as a miniature solar system made it easier to explain some difficulties.

16. It is not entirely out of question that certain intensity fluctuation were due to scintillation.

Таблица 10

Причастия

Вид причастия	Функция в предложении и перевод		
	часть сказуемого	определение	обстоятельство
1. Participle I Active voice **solving** **writing**	He **is solving** a problem. Он **решает** задачу. (Для образования времен группы Continuous. Самостоятельно не переводится).	The engineer **solving** this problem works hard. Инженер, **решающий** эту задачу, много работает. We tested the device **showing** the disturbances. Мы проверили прибор, **показавший** нарушения в работе. (Причастие на -щий, -вший).	(When, while) **solving** the problem he read many books. **Решая** задачу, он прочитал много книг. (Деепричастие на -а, -я).
2. Participle I Passive voice **being solved** **being written**	The problem **is being solved**. Задача **решается**. (Для образования группы времен Continuous пассивного залога. Самостоятельно не переводится).	The problem **being solved** was difficult. **Решаемая** задача была трудной. (Причастие на -емый, -имый).	**(While) being solved**, the problem offered some unexpected aspects. **Когда ее решали** (**при решении**), задача представила некоторые неожиданные стороны. (Придаточное обстоятельственное предложение; существительное с предлогом).

Окончание табл. 10

Вид причастия	Функция в предложении и перевод		
	часть сказуемого	определение	обстоятельство
3. Participle II Passive voice **solved** **written**	1) He **has solved** the problem. Он решил задачу. (Для образования времен Perfect. Самостоятельно не переводится). 2) The problem **is solved**. Задача решена. (Для образования пассивного залога. Самостоятельно не переводится).	The problem **solved** turned out to be fundamental. **Решённая** задача оказалась фундаментальной. The problem **discussed** yesterday is very important. Проблема, **обсуждавшаяся** вчера, очень важна. (Причастие на -щийся, -мый, -ный, -тый, -вшийся).	**If solved**, the problem will offer numerous consequences. **Если ее решить**, задача будет иметь многочисленные последствия. (Обстоятельственное придаточное предложение).
4. Perfect Participle active voice **having solved** **having written**	–	–	**Having solved** the problem he left the classroom. **Решив** задачу, он ушел из класса. (Деепричастие на -ив, -ав).
5. Perfect Participle Passive voice **having been solved** **having been written**	–	–	**Having been solved**, the problem offered some unexpected consequences. **После того как задача была решена**, обнаружились некоторые ее неожиданные следствия. (Придаточное обстоятельственное предложение).

Упражнение 1

Переведите предложения, учитывая разные функции в предложении и соответствующий перевод причастия Participle I (Active и Passive).

1. The furnace walls are composed of tubes which are also connected to the boiler drum forming a very effective steam-generating surface.

2. The tubes of furnace walls are forming a very effective steam-generating surface.

3. The steam being separated from the water in the boiler drum flows through a superheater.

4. The gaseous products of combustion leaving the boiler tube bank are at a relatively high temperature.

5. The gaseous products of combustion are leaving the boiler tube bank at a relatively high temperature.

6. Many steam power plants of large size are being built now.

7. Steam generating units delivering 3,000,000 lb. of steam per hour are now in operation.

8. Overall efficiency of the plant depending upon the size, steam pressure, temperature and other factors is doubled.

9. Valves are opened periodically and some of the boiler water is blown to sewer, thus carrying out of the system the impurities.

10. Some of boilers have become popular and are sold including fire-tube boilers and water tube boilers.

Упражнение 2

Переведите предложения, учитывая разные функции в предложении и соответствующий перевод причастия Participle II.

1. The purposes of injectors sometimes called "atomizers" are numerous.

2. The grate bars made of heat resistant cast iron are cooled by the air supplied for combustion and form a flat surface for the fuel bed.

3. The grate bars are made of heat resistant cast iron.

4. High grade waste heat, which is defined as the heat carried by flue gases with a temperature of 250° and higher, can be recovered through properly selected and designed heat transfer system.

5. This heat transfer system is properly selected and designed.

6. The classification of injectors is based on the source of energy used to break up the liquid.

7. The heat of combustion is the heat released during the combustion reaction based on standard conditions.

8. The air supplied in the burner is defined as primary air and additional air supplied downstream of the burner as second air.

9. The higher gas temperature caused increased slagging of the boiler surface.

Упражнение 3

Переведите предложения, учитывая разные функции и соответствующий перевод причастий.

1. Large power plants currently being built in regions of high fuel cost are designed for operations at pressures of more than 1500 psig.

2. Thermal analysis concerning combustion involves the heat and the temperature.

3. The first law of thermodynamics states that all the work done by the turbine comes from the energy in the steam flowing through the turbine.

4. The steam impinges on the wheel blades causing the wheel to rotate.

5. Each disc carrying the moving blades is perforated thus maintaining the same pressure on both sides of the wheel.

6. The double suction permits forces acting on the impeller to be balanced, thus reducing the axial thrust (колебания) on the shaft.

7. Because of the heat radiated back from combustion zone, polymerization may occur at the nozzle tip causing tip plugging.

8. The small amount of unevaporated water is separated from the steam and is blown down to a lower pressure carrying out with it any impurities.

9. As the oxidation rate increases, the temperature gradually rises, increasing the rate of oxidation and hence the rate of temperature rise.

10. The overall length of the turbine is increased thereby necessitating larger building space and introducing additional losses by the use of interconnecting piping.

11. Having cooled sufficiently the products of combustion we may force them to enter the superheater tubes.

12. Having increased the furnace size and temperature it is necessary to improve refractory maintenance, particularly when firing with pulverized coal.

13. In the boilers with water tube furnace bent tubes are arranged to form furnace enclosure making it integral with the boiler.

14. The steam expands in the fixed blade increasing its velocity.

Таблица 11

Независимый причастный оборот

Примеры	Перевод
Независимый причастный оборот в **начале** предложения (переводим с союзами «**так как**» или «**когда**»)	
1. *The problem being difficult*, they worked hard.	***Так как*** *задача была трудная*, они работали много.
2. *The experiment being carried out*, he cannot leave the laboratory.	***Так как (когда)*** *эксперимент идет*, он не может уйти из лаборатории.
3. *With radioactivity discovered*, great progress was made in physics.	***Когда*** *была открыта радиоактивность*, в физике произошли огромные перемены.
Независимый причастный оборот в **конце** предложения (переводим с союзами «**причём**», «**при этом**», «**и**», «**а**»)	
4. He read two articles on this subject, *the latter being more interesting.*	Он прочитал две статьи на эту тему, ***причём*** *последняя была более интересная.*

Упражнение

Переведите предложения, учитывая особенности перевода независимого причастного оборота.

1. Noncondensable gases being highly corrosive, their removal of the condenser is important.

2. When some impellers are mounted on the same shaft and act in series, the pump is called a multistage pump, the number of stages corresponding to the number of impellers.

3. The source of cooling water being a lake or a river, there is no need for water conservation.

4. In the reaction turbines the pressure at entrance to the motor blade is greater than at exit, the expansion taking place in both the stationary and rotating passages.

5. The tubes are cast iron, the gases passing through plain tubes and the air – over the grill surface.

6. Simple turbines have a considerable number of pressure stages, a wheel in each stage having one row of blades.

7. The steam being condensed, heat is transferred from the vented steam to the water.

8. Steam turbines are grouped into 3 types, classification being made in accordance with the conditions of the operation of the steam on the rotor blades.

9. The economics of the situation permitting, the steam generating units are fired by pulverized coal.

10. Bent tubes being used instead of straight tubes, no floating head is necessary.

11. Cooling water being usually corrosive in nature, condenser tubes are often made of special alloys of copper or aluminum.

12. Noncondensable gases being collected in the condenser, the vacuum in the condenser will increase.

13. The major item (часть) of the cost of a boiler being the drums, as many boiler tubes as possible are placed between the drums.

14. Feed water entering the boiler at high temperature, the boiler is relieved of a part of its load, and temperature stresses within the boiler are reduced.

15. The circulation pump raises the water pressure to about 40 psi above the drum pressure, this being sufficient to overcome the resistance of the flow controlling orifices of the small diameter tubing.

16. There being no expansion in the passage between the rotor blades, the steam pressure is the same at the inlet and outlet of the blades.

17. In a pure reaction turbine expansion should take place only as the steam passes through the moving blades, the turning effect (эффект вращения) being due to the reaction consequent on the increase in velocity which accompanies expansion.

18. The tubes being vertical or nearly vertical, the tendency toward slag adherence is decreased.

19. The boiler producing dry steam, all the impurities remain in the boiler.

Таблица 12

Герундий

Функция в предложении	Примеры	Перевод
1. Подлежащее	**Making** the first measuring instrument was not an easy thing.	**Сделать** первый измерительный прибор было нелегко. (Инфинитив, существительное).
2. Часть сказуемого	The main task is **switching off** the system in time.	Главная задача – **выключить** (**выключение**) систему вовремя. (Существительное, инфинитив).
3. Прямое дополнение	The equipment allows **increasing** the temperature.	Оборудование позволяет **повысить** температуру. (Инфинитив, существительное)
4. Определение (обычно с предлогом **of, for** после существительного)	The final temperature depends upon the method **of firing** and classes of coal.	Конечная температура зависит от способа **сжигания** и видов угля. (Существительное).
5. Обстоятельство (обычно с предлогами: **in – при, в то время как, on (upon) – по, после, after – после, before – перед, by – творит. падеж, instead of – вместо того чтобы, for – для** и т.д.	The operator examined the machine **without diminishing** its speed.	Оператор осмотрел машину **без уменьшения** (**не уменьшая**) ее скорости. (Существительное с предлогом, деепричастие с отрицанием).

Упражнение

Переведите предложения, учитывая функцию в предложении и особенности перевода герундия.

1. This method for storing and transporting flue gases becomes criticized.

2. The cooling water after passing through the condenser is pumped to a cooling tower.

3. The equipment for producing the fluid is divided into two major classes: pumps for handling liquids and fans, blowers and compressors for handling gases and vapors.

4. The tubular air heater is constructed by expanding vertical tubes into parallel tube sheet.

5. The American Society for testing materials had adopted a test procedure for determining the ignition temperature of liquid combustibles.

6. It is important for industries to investigate the possibility of recovering the millions of calories of heat that are lost every day.

7. If steam is required for processing, a turbine may be modified by extracting the steam.

8. There are two general methods of firing fuel commonly used: 1) on stationary grates, 2) on stokers.

9. Determining the type and multiplicity of burners, their arrangement and the flame shape will cause the furnace width and depth dimensions.

10. Using more equipment and more complex cycles gives better theoretical efficiencies.

11. Building mechanical equipment supplements the natural circulation in a boiler.

12. Pumping large quantities of fluid against a relatively small static head requires the use of axial flow impellers.

13. The spreader stoker is not adaptable to light operation because of the difficulty of maintaining ignition and combustion in the very thin fuel bed with a cold surface.

14. In condensing the steam gives up heat to the water.

15. Leakage between the tube and end plate is prevented by packing.

16. Care should be taken in operating any positive displacement blower.

17. Better theoretical efficiencies are possible by using more equipment in more complex cycles.

18. Comparing the data obtained by different tests is the only means of solving many problems.

19. Protecting buildings from strokes of lightning was a great achievement in the field of electricity.

20. Being out in the open field during a thunderstorm is dangerous.

Таблица 13

Инфинитив

Функция в предложении	Примеры	Перевод
1. Подлежащее	**To provide** three pulverizers is necessary for the efficient operation of the furnace.	**Обеспечить** три распылителя необходимо для эффективной работы топки. (Инфинитив, существительное).
2. Часть сказуемого: a) После глагола-связки “is” с существительными “aim”, “purpose”, “idea” и т.д. b) После модального глагола to be+to, to have+to и др.	a) Their aim is **to improve** the equipment. b) You have **to improve** the equipment.	a) Их цель – (**состоит в том, чтобы*)* усовершенствовать** оборудование. (Инфинитив). b) Вы **должны усовершенствовать** оборудование.
3. Дополнение	The operator prefers **to use** the new equipment.	Оператор предпочитает **использовать** (**использование**) новое оборудование. (Инфинитив, существительное).
4. Определение	a) They have the possibility **to use** this system; b) The new equipment **to be used** at our power plant has just arrived; c) He was the first **to begin** this experiment.	a) У них есть возможность **использовать** эту систему. (Инфинитив, существительное). b) Новое оборудование, **которое должно быть (будет) использовано** на нашей электростанции, только что прибыло. (Определительное придаточное предложение со сказуемым, выражающим действие, которое ***должно быть*** или ***будет*** совершено). c) Он первым **начал** этот эксперимент.
5. Обстоятельство	**To design** a good turbine, you must have good knowledge of its construction.	**Чтобы спроектировать** хорошую турбину, вы должны иметь хорошие знания о ее конструкции. (Инфинитив с союзами ***чтобы, для того чтобы***).

Упражнение

Переведите предложения, учитывая разные функции инфинитива и особенности его перевода.

1. To cover waste energy two major types of hardware are used: combustion equipment and heat transfer equipment.

2. Parameters to be measured in a control experiment include density and temperature of the fuel.

3. To lower the temperature of the cooling water by artificial means would require additional energy.

4. An additional factor to be considered is the cost and maintenance of cooling system.

5. Combination of radial and convective heat transfers are used to improve the effectiveness of heat transfer.

6. The materials to be used for the construction of the modern boilers are described in this book.

7. The tubes to be made of this metal will be used in different kinds of boilers.

8. An economizer and an air heater are provided to cool the products of combustion to the low temperature necessary for high efficiency.

9. The function of the economizer is to supply the boiler with wet steam and feed water.

10. To overcome the limited output at the exhaust end turbines are usually of multicylinder type.

11. To convert pulverized coal furnaces to firing with oil or gas is not difficult.

12. To create mechanical circulation is the only means of obtaining the desired fluid flow.

13. To reduce to a minimum the loss of the fuel is the function of the air heater.

14. All heat must be transferred through the heating surface to reach the water.

15. To obtain high economy it is necessary that the steam should flow through the turbine with high velocity.

16. For these fuels specially designed combustion systems are required to ensure complete oxidation of waste materials.

17. The problem to be solved consists in finding the new generator characteristics.

18. The shape of the furnace depends upon the kind of fuel burned, the equipment to burn the fuel and the type of boiler to absorb energy.

19. Some of the factors to be aimed at in stoker design are: maximum rate burning, highest continuous efficiency and the unlimited choice of fuels.

20. It is necessary to maintain a hot zone above the entering fuel to ignite the fuel on the grate.

Таблица 14

Инфинитивные обороты. I. Сложное подлежащее

<table>
<tr><td colspan="3" rowspan="2">Примеры</td><td colspan="2">Перевод</td></tr>
<tr><td colspan="2">Переводится двумя способами:
1. Простым предложением с вводным словом, соответствующим сказуемому английского предложения.</td></tr>
<tr><td>Heat</td><td>is known
is likely
is certain
is found
is reported
is assumed
is considered
is expected
appears
seems
proved</td><td>to be a form of energy.</td><td>Известно,
Вероятно,
Несомненно,
Обнаружено,
Сообщают,
Допускается,
Считается,
Ожидается,
Оказывается,
Кажется,
Доказано,</td><td>что тепло – это форма энергии.</td></tr>
<tr><td>(2)</td><td>(1)</td><td>(3)</td><td>(1),</td><td>(2) (3)</td></tr>
<tr><td colspan="3"></td><td colspan="2">2. Дополнительным придаточным предложением с союзами «что», «чтобы», «как». Инфинитив переводится личной глагольной формой.</td></tr>
<tr><td colspan="3">Heat is known to be a form of energy.
(2) (1) (3)</td><td colspan="2">Тепло, как известно, является формой энергии.
(2) (1) (3)</td></tr>
</table>

Упражнение

Переведите предложения, учитывая особенности перевода сложного подлежащего.

1. Lightning proved to be a discharge of electricity.

2. Heat is known to be a form of energy.

3. Coal is considered to be a valuable fuel.

4. Some liquids, called electrolytes, are found to change greatly when an electric current passes through them.

5. The alternating current used for power and lighting is assumed to go through 50 cycles in one second.

6. The Fahrenheit scale is known to be used in English speaking countries.

7. Amber is said to attract and to hold minute light objects after rubbing.

8. Heat is known to pass from a hotter body to a colder one.

9. A fuse is expected to melt and break the circuit.

10. The overloading of the line is likely to produce a short circuit.

11. When electrical devices are connected so that the current flows from one device to another, they are said to be connected in series. The electrical bell circuit is considered to be a typical example of a series circuit.

12. The cyclone furnace is known to be water cooled as an adjunct to the boiler circulation system.

13. The furnace height is proved to be the function of the required furnace volume.

14. All pulverized coal fired furnaces constructed today are considered to be partially or completely water-cooled.

15. The coal is expected to fall by gravity from the bunkers through a valve into feeding chutes.

16. A glass tube filled with neon gas was found to be suitable for the use as signalling source.

17. The condensate leaving the condenser and entering the boiler feed pump is always assumed to be saturated water at the condensate pressure.

Таблица 15

Инфинитивные обороты. II. Сложное дополнение

Примеры	Перевод
1. They want (like) ***the plan to be fulfilled***. 2. * They see (hear) ***the engineer leave the room***. 3. * They order, allow (let), cause, force (make) ***this fuel to arrive (arrive) immediately***.	1. Они хотят, ***чтобы*** *план был выполнен*. 2. Они видят (слышат), ***что*** *инженер уходит из комнаты*. 3. Они приказывают (позволяют, заставляют), ***чтобы*** *это топливо прибыло немедленно.*
* После глаголов чувственного восприятия (see, hear, feel и т. д.), а также глаголов let, make, have используется инфинитив без частицы “to”.	Переводится придаточным предложением с союзами «**что**», «**чтобы**», «**как**». Инфинитив переводится личной глагольной формой.

Упражнение 1

Переведите предложения со сложным дополнением.

1. They expected these new installations to be widely used in various kinds of power stations.

2. We know the alternating current to flow first in one direction and then in another.

3. The students saw the thermometer mercury fall to the fixed point.

4. The induced voltage causes the current to flow and the rotor to revolve.

5. We may expect a short circuit to result from wire fault.

6. The invention of James Watt made the engine double its velocity.

7. A forced-draft fan forces the combustion air to flow through the air heater into the furnace.

8. Some stations find the cyclone furnace to be advantageous.

9. They proved the combustion in the cyclone furnace to be complete and to have practically no carbon loss.

10. The practice proved the cyclone furnace to be suitable for a wide range of coals.

11. In the burner the gas under pressure enters the furnace through a burner port and lets a flow of air pass through the port.

12. In the ring burner the gas flows through an annular ring and causes the air to flow both around and within the annulus of gas.

13. The depth of the active bed enables an adequate supply of air to penetrate the fuel bed and enter the furnace.

14. The mixing of the volatile matter with turbulent air permits the volatile matter to burn smokelessly.

15. This type of stoker lets the fine sizes of anthracite and coke breeze burn quickly and pass through a screen with very small round openings.

Упражнение 2

Переведите предложения, сравнив перевод сложного дополнения и сложного подлежащего.

1. These conditions of the burning permit large amounts of fine particles of carbon to be blown upward into the furnace.

2. These conditions of the burning are expected to permit large amounts of fine particles of carbon to be blown upward into the furnace.

3. High velocity steam jets in the furnace allow the combustion to be improved and the smoke to be reduced.

4. High velocity steam jets in the furnace proved to improve the combustion and to reduce the smoke.

Таблица 16

Бессоюзные придаточные предложения

Вид предложения	Примеры	Перевод
1. Дополнительные придаточные предложения	We believe *the temperature of the water does not change*.	Мы считаем, ***что*** *температура воды не меняется.*
2. Определительные придаточные предложения	Metals *we define as good conductors of electricity* are also good conductors of heat.	Металлы, ***которые*** *мы определяем как хорошие проводники электричества,* являются также хорошими проводниками тепла.
3. Условные придаточные предложения с инверсией с глаголами **were**, **had**, **could**, **should**	***Were*** *one electron removed*, a positive charge would be left.	***Если бы*** *один электрон был удален*, остался бы положительный заряд.

Упражнение

Переведите предложения, учитывая особенности перевода бессоюзных придаточных предложений.

1. Metals we define as good conductors of electricity are also good conductors of heat.

2. The economiser is a bank of tubes the boiler feedwater is pumped through on its way to the boiler drum.

3. The expansion of the steam is carried out in stages we call "pressure stages".

4. The condensing turbine is used chiefly for the low cost of electric power it produces.

5. The next problem the professor dealt with was connected with the application of magneto-hydrodynamic generator.

6. James Watt noticed the alternately heating the steam cylinder with steam and cooling it with injection water produced a large waste of energy.

7. Experiments show all gases expand when heated.

8. James Watt realized the loss of energy in Newcomen engine could be reduced.

9. We believe the temperature of the water does not change during this experiment.

10. In spite of many difficulties they consider the new turbine will arrive in time.

11. This means magnetic effect could be produced by electricity alone without any magnet.

12. Should care be taken in providing the properly driven motor, the overload characteristics of the centrifugal blower would cause no trouble.

13. Were the pressure in the furnace high, there would be air leakage to the furnace with a corresponding reduction in the furnace temperature.

14. Could the steam be condensed and the water removed by pumps, a partial vacuum would be formed in the exhaust chamber of the turbine.

15. Had the factory process required steam at a specific pressure an automatic extraction turbine would be necessary.

16. Were the system properly controlled, the necessary pressure would be maintained in the furnace.

Таблица 17

Типы условных предложений

Реальные условия	Не вполне реальные условия	Нереальные условия
1. Союзные (с союзами **if** – если, **provided** (that), **providing** (that), **supposing** (that), **on condition** (that) – при условии что)		
If he **goes** to bed early, he **will get up** early. Если он ляжет спать рано, то и встанет рано. Времена: после союза – Present Simple, в главном – Future Simple.	If he **went** to bed early in summer, he **would get up** early. Если бы он ложился спать рано летом, то и вставал бы рано. Времена: после союза – Past Simple, в главном – Would + Infinitive	If he **had gone** to bed early yesterday, he **would have got up** early. Если бы он лег спать рано вчера, то и встал бы рано. Времена: после союза – Past Perfect, в главном – Would + have + Participle II.
2. Бессоюзные (с инверсией – в начале предложения: **had, were, could, should**)		
	Could he swim well, he would take part in the competition. Если бы он хорошо плавал, то принял бы участие в соревновании.	

Упражнение

Переведите условные придаточные предложения, исходя из типа выраженного в них условия и значения условного союза или его отсутствия.

1. If a fluid expands at constant entropy, maximum work will be obtained.

2. On condition that the boiler is provided with a brick furnace which is external to the boiler itself, it is known as an externally fired boiler.

3. Provided direct contact heaters are used in series, a feed water pump must be installed ahead of each heater.

4. Were scale free feedwater be available, the flanged return bend (профланцованное обводное соединение) could be eliminated.

5. Supposing that oil, gas or pulverized coal were burned, an air heater would often be installed without economizer.

6. Should it be standard practice to install one steam generator per turbine, they would be very carefully designed to insure reliable and continuous operation of the turbines.

7. Provided water passed through coils in the vent condenser, it could then enter the tray of the feed water heater.

8. If we used the jet condenser instead of surface condenser, it would require more cooling water.

9. Provided all the heat was released, the reaction could not proceed.

10. Provided the reaction were started, it would proceed till completion.

СЛОВАРЬ

Сокращения: части речи

сокращение	означает	перевод
a (adj)	adjective	имя прилагательное
adv	adverb	наречие
cj (conj)	conjunction	союз
n	noun	имя существительное
part	participle	причастие
pl	plural	множественное число
prep	preposition	предлог
pron	pronoun	местоимение
v	verb	глагол

A		
accompany, v	[ə'kʌmpənɪ]	сопровождать
accordance, n in accordance with	[ə'kɔ:dəns]	зависимость в зависимости от
achieve, v	[ə'tʃi:v]	достигать
achievement, n	[ə'tʃi:vmənt]	достижение
act, v	[ækt]	действовать
add, v	[æd]	добавлять
additional, a	[əd'ɪʃənəl]	дополнительный
adherence, n	[əd'hɪərəns]	прилипание
advantage, n	[əd'vɑ:ntɪdʒ]	преимущество
adversely, adv	[ədv'ɜ:səlɪ]	обратно, наоборот
affect, v	[ə'fekt]	влиять (на)
agreement, n	[ə'gri:mənt]	соглашение
aim, n v	[eɪm]	цель преследовать цель
allow, v	[ə'laʊ]	позволять
alloy, n	['ælɔɪ]	сплав
amber, n	['æmbə]	янтарь
amount, n	[ə'maunt]	количество
appear, v	[ə'pɪə]	появляться
application , n	[ˌæplɪ'keɪʃən]	применение
arrange, v	[ə'reɪndʒ]	располагать
arrangement, n	[ə'reɪndʒmənt]	расположение
artificial, a	[ˌa:tɪ'fɪʃəl]	искусственный
ash, n	[æʃ]	зола

assertion, n	[ə'sɜ:ʃn]	утверждение
assume, v	[ə'sju:m]	допускать
attach, v	[ə'tætʃ]	присоединять
attract, v	[ə'trækt]	притягивать
attraction, n	[ə'trækʃən]	притяжение
auxiliaries, n, pl	[ɔ:g'zɪljərɪz]	вспомогательные устройства
available, a	[ə'veɪləbl]	доступный, имеющийся в наличии
axial, a	['æksɪəl]	осевой
B		
bank, n	[bæŋk]	батарея, пучок
bar, n	[ba:]	стержень
bed, n fuel bed	[bed]	слой топливный слой
bell, n	[bel]	звонок
bent, a	[bent]	изогнутый
blade, n	[bleɪd]	лопасть
blanket, n	['blæŋkɪt]	одеяло, покрывало
blow (blew, blown), v	[bləʊ]	дуть, вдувать
blower, n positive-displacement blower	['bləʊə]	вентилятор, воздуходувка вентилятор с положительной подачей
body, n	['bɒdɪ]	тело
boiler, n fire-tube boiler horizontal boiler watertube boiler	['bɔɪlə]	котёл жаротрубный котёл горизонтальный котёл водотрубный котёл
bottom, n	['bɒtəm]	дно
boundary, n	['baʊndərɪ]	граница
branch, n	[brɑ:nʧ]	отрасль
break (broke, broken), v break up	[breɪk]	разбивать, разрывать рассеивать
breeze, n	['bri:z]	угольная пыль
brick, n	[brɪk]	кирпич
broadly, adv	['brɔ:dlɪ]	в целом
building, n	['bɪldɪŋ]	здание
burn, v	[bɜ:n]	сжигать, гореть
burner, n ring burner	['bɜ:nə]	горелка кольцевая горелка
C		
calculation, n	[ˌkælkjʊ'leɪʃn]	расчёт, вычисление
capacity, n	[kə'pæsɪtɪ]	мощность, нагрузка
carbon, n	['kɑ:bən]	углерод

carry, v carry out	['kærɪ]	нести проводить, выполнять
case, n	['keɪs]	случай
casing, n	['keɪsɪŋ]	кожух, корпус
cast iron	['kɑ:st'aɪən]	чугун
cause, v n	['kɔ:z]	вызывать, причинять причина
chain, n	['ʧeɪn]	цепь
chamber, n	['ʧæmbə]	камера
choice, n	[ʧɔɪs]	выбор
chute, n	[ʃu:t]	жёлоб, лоток
circle, n v	['sɜ:kl]	круг кружиться
circuit, n short circuit	['sɜ:kɪt]	цепь короткое замыкание
clearing, n	['klɪərɪnŋ]	прочистка
closely, adv	['kləʊslɪ]	тщательно
coil, n	[kɔɪl]	катушка, змеевик
collect, v	[kə'lekt]	собирать
combustible, n	[kəm'bʌstɪbl]	топливо, горючее
combustion, n	[,kəm'bʌsʧən]	горение
component, n	[kəm'pəʊnent]	компонент, составная часть
compound, n	['kɒmpaʊnd]	соединение
comparatively, adv	[kəm'pærətɪvlɪ]	сравнительно
compare, v	[kəm'pɛə]	сравнить
completely, adv	[kəm'pli:tlɪ]	полностью
complicated, a	[,kɒmplɪ'keɪtɪd]	сложный
concern, v	[kən'sɜ:n]	касаться, относиться
conclude, v	[kən'klu:d]	заключить, сделать вывод
condensate, n	[kən'densɪt]	конденсат
condenser, n jet condenser surface condenser	[kən'densə]	конденсатор струйный конденсатор поверхностный конденсатор
condition, n	[kən'dɪʃn]	условие; состояние
conduction, n	[kən'dʌkʃən]	проводимость
conductor, n	[kən'dʌktə]	проводник
connect, v	[kə'nekt]	соединять
conquer, v	['kɒŋkə]	побеждать
consequent, a	['kɒnsɪkvənt]	следующий
conservation, n	[,kɒnsə'veɪʃən]	сохранение
consider, v	[kən'sɪdə]	рассматривать, учитывать
considerable, a	[kən'sɪdərəbl]	значительный

consist (of), v	[kən'sɪst]	состоять (из)
continuation, n	[kən,tɪnjʊ'eɪʃən]	продолжение
continue, v	[kən'tɪnjʊ]	продолжать
continuous, a	[kən'tɪnjʊəs]	непрерывный
contraction, n	[kən'trækʃn]	сжатие
conventional, a	[kən'venʃənəl]	обычный, общепринятый
conversion, n	[kən'vɜ:ʃn]	конверсия, превращение
convert, v	[kən'vɜ:t]	превращать
cool, v a	[ku:l]	охлаждать холодный
copper, n	['kɒpə]	медь
correspond,v	[,kɒrɪs'pɒnd]	соответствовать
cost, n	[kɒst]	стоимость
cover, v	['kʌvə]	покрывать
current, n alternating current	['kʌrənt]	ток переменный ток
D		
data, n, pl	['deɪtə]	данные
deal with, v	['di:l wɪð]	иметь дело с, изучать
decrease, n v	['di:kri:s] [dɪ'kr i:s]	уменьшение уменьшать
deduction, n	[dɪ'dʌkʃən]	вывод
define, v	[dɪ'faɪn]	определять
deliver, v deliver a lecture	[dɪ'lɪvə]	поставлять читать лекцию
density, n	['densɪtɪ]	плотность
department, n	[dɪ'pɑ:tmənt]	факультет; отдел
depend (on), v	[dɪ'pend]	зависеть (от)
design, n	[dɪ'zaɪn]	конструкция
determine, v	[dɪ'tɜ:mɪn]	определять
development, n	[dɪ'veləpmənt]	развитие; разработка
device, n	[dɪ'vaɪs]	устройство, прибор
difference, n	['dɪfərəns]	разница
difficulty, n	['dɪfɪkəltɪ]	трудность
dimension, n	[dɪ'menʃən]	размер, измерение
dioxide, n	[,daɪ'ɒksaɪd]	двуокись, диоксид
direction, n	[dɪ'rekʃən]	направление
discharge, v	[dɪs'ʧɑ:ʤ]	выпускать, выгружать
discover, v	[dɪs'kʌvə]	открыть
discovery, n	[dɪs'kʌvərɪ]	открытие
displacement, n	[dɪsp'leɪsmənt]	перемещение, смещение
dissatisfied, a	[dɪs'sætɪs,faɪd]	неудовлетворённый
double, v	[dʌbl]	удвоить

downstream, adv	['daʊn'stri:m]	вниз по течению
downward, adv	['daʊnwɔ:d]	вниз
draft, n	[drɑ:ft]	тяга
drive (drove, driven), v	[draɪv]	вести, приводить в движение; запускать
drop, n	[drɒp]	перепад, падение
drum, n	[drʌm]	барабан
due to, prep to be due to	['dju: tə]	из-за, благодаря объясняться (чем-либо)
E		
efficiency, n	[ɪ'fɪʃənsɪ]	эффективность; КПД
ejector, n	[i:'ʤektə]	струйный насос
enable, v	[ɪ'neɪbl]	позволять
enclosure, n furnace enclosure	[ɪn'kləʊʒə]	ограждение помещение с топкой
end, n	[end]	конец
engine, n steam engine	['enʤɪn]	двигатель паровой двигатель
engineering, n heat-power engineering	[ˌenʤɪ'nɪərɪŋ]	техника, инженерное дело теплотехника
enormous, a	[ɪ'nɔ:məs]	огромный
ensure, v	[ɪn'ʃʊə]	обеспечить
enter, v	['entə]	входить
entrance, n	['entrəns]	вход
equipment, n	[ɪ'kwɪpmənt]	оборудование
escape, v	[ɪs'keɪp]	ускользать, уходить
essential, a	[ɪ'senʃəl]	важный, существенный
exchanger, n heat exchanger	[ɪks'ʧeɪnʤə]	обменник теплообменник
exhaust, n	[ɪg'zɔ:st]	выпуск, выхлопная труба
exit, n	['eksɪt]	выход
expansion, n	[ɪks'pænʃən]	расширение
expect, v	[ɪks'pekt]	ожидать
F		
fall (fell, fallen), v	[fɔ:l]	падать
fan, n axial flow fan forced-draft fan	[fæn]	вентилятор осевой вентилятор дутьевой вентилятор
fault, n	[fɔ:lt]	повреждение
feedwater, n	['fi:d,wɔ:tə]	питательная вода
fill, v	['fɪl]	наполнять
find (found, found), v	[faɪnd]	находить

fire, v	['faɪə]	жечь, поджигать; топить (печь)
flame, n	[fleɪm]	пламя
flexibility, n	[ˌfleksɪ'bɪlɪtɪ]	гибкость
flight, n	[flaɪt]	полёт
floor, n	[flɔ:]	рабочая площадка
flow, v	[fləʊ]	течь
fluid, n	['flu: ɪd]	жидкость, жидкая среда
fly, v	[flaɪ]	лететь
follow, v	['fɒləʊ]	следовать (за)
force, v n	[fɔ:s]	направлять; сила
form, v	[fɔ:m]	образовать
frame, n	[freɪm]	рама
frequently, adv	['frɪkwəntlɪ]	часто
friction, n	['frɪkʃn]	трение
fuel, n	['fjʊəl]	топливо
function, n v	['fʌŋkʃən]	функция функционировать
fundamentals, n, pl	[ˌfʌndə'mentəlz]	основы
furnace, n cyclone furnace	['fɜ:nɪs]	топка циклонная топка
fuse, n	[fju:z]	пробка, плавкий предохранитель
G		
gas, n flue gas	[gæs]	газ топочный газ
generate, v steam generating	['ʤenəreɪt]	порождать, образовывать парообразующий
generator, n steam generator	[ˌʤenə'reɪtə]	генератор парогенератор
glass, n	[glɑ:s]	стекло
graduate, v	['grædjʊɪt]	окончить (школу, вуз)
grate, n	[greɪt]	решётка
gravity, n by gravity	['grævɪtɪ]	сила тяжести под действием силы тяжести
grill, n	[grɪl]	решётка
H		
handling, n	['hændlɪŋ]	обработка, обслуживание
hardware, n	['hɑ:dwɛə]	аппаратные средства
head, n	[hed]	напор
heat, n v	[hi:t]	тепло нагревать
heater, n	['hi:tə]	нагреватель

height, n	[haɪt]	высота
hold (held, hold), v	[həʊld]	удерживать
hopper, n	['hɒpə]	загрузочный люк
horsepower, n	['hɔ:s,paʊə]	лошадиная сила
household, n	['haʊshɒld]	семья, дом, домохозяйство
hurt, v	[hɜ:t]	повредить, причинить боль
I		
ignition, n	[ɪg'nɪʃən]	поджиг
imagine, v	[ɪ'mædʒɪn]	представить себе
impeller, n	[ɪm'pelə]	рабочее колесо
impinge, v	[ɪm'pɪndʒ]	действовать на, давить
improve, v	[ɪm'pru:v]	усовершенствовать, улучшить
impurity, n	[ɪm'pjʊərɪtɪ]	примесь
inadequate, a	[ɪn'ædɪkwɪt]	неровный
increase, v n	[ɪnk'ri:s]	увеличивать(ся) увеличение
induce, v	[ɪn'dju:s]	наводить, создавать
infinite, a	['ɪnfɪnɪt]	бесконечный
influence, v	['ɪnflʊəns]	влиять на
injection, n	[ɪn'dʒekʃn]	впрыск
input, n	['ɪnpʊt]	вход, потребление
install, v	[ɪn'stɔ:l]	установить
installation, n	[,ɪnstə'leɪʃn]	установка
instead of, prep	[ɪns'ted əv]	вместо
integral, a	['ɪntɪgrəl]	неразделимый
integrate, v	['ɪntəgreɪt]	соединять
interconnect, v	['ɪntəkə'nekt]	взаимосвязывать
internally, adv	[ɪn'tɜ:nəlɪ]	изнутри, внутри
introduce, v	[,ɪntrə'dju:s]	вводить
involve, v	[ɪn'vɒlv]	включать, вести за собой
J		
jet, n	[dʒet]	струя
joint, n expansion joint	[dʒɔɪnt]	соединение компенсатор, соединительный шов
justify, v	['dʒʌstɪfaɪ]	подтвердить
L		
lead, v	[led]	вести
leakage, n	['li:kɪdʒ]	утечка
leave (left, left), v	[lɪ:v]	покидать, уходить
length, n	[leŋθ]	длина
level, n	['level]	уровень

light, n a	[laɪt]	свет лёгкий
lightning, n	['laɪtnɪŋ]	молния
likely, adv to be likely to	['laɪklɪ]	вероятно предполагать
limit, n	['lɪmɪt]	предел
limitation, n	[lɪmɪ'teɪʃən]	ограничение
load, n	[ləʊd]	нагрузка
locate, v	[ləʊ'keɪt]	размещать
look, v look for	[lʊk]	смотреть искать
loose (lost, lost), v	[lu:z]	терять
loss, n	[lɒs]	потеря
lot, n a lot of	[lɒt]	 много
low, a	[ləʊ]	низкий
M		
maintain, v	[men'teɪn]	поддерживать
maintenance, n	['mentənəns]	обслуживание, содержание
major, a	['meɪʤə]	главный, основной
mean, v	[mi:n]	означать
means, n, pl by means of	[mi:nz]	средства посредством, с помощью
measure, v	['meʒə]	измерять
melt, v	[melt]	плавить(ся)
mention, v	['menʃən]	упомянуть
minute, a	[maɪ'nju:t]	мельчайший
miss, v	[mɪs]	пропускать
mixing, n	['mɪksɪŋ]	смешение
mount, v	[maʊnt]	монтировать
move, v	[mu:v]	двигать(ся)
mover, n prime mover	['mu:və]	двигатель начальный двигатель
multiplicity, n	['mʌltɪ'plɪsɪtɪ]	многочисленность
multistage, a	[ˌmʌltɪ'steɪʤ]	многоступенчатый
N		
nature, n	['neɪʧə]	природа
necessitate, v	[nə'sesɪteɪt]	требовать
neglect, v	[nɪ'glekt]	пренебрегать
negligible, a	['neglɪʤəbl]	незначительный
nozzle, n fixed nozzle	['nɒzl]	сопло неподвижное сопло
nucleus, n	['nju:klɪəs]	ядро

number, n a number of	['nʌmbə]	число ряд, несколько
O		
observation, n	[ˌɒbzə'veɪʃən]	наблюдение
obtain, v	[əb'teɪn]	добывать, получать
occupy, v	['ɒkjʊpaɪ]	занимать
occur, v	[ə'kɜ:]	происходить, возникать
oil, n crude oil	[ɔɪl]	нефть сырая нефть
open, v	['əʊpən]	открывать
opening, n	['əʊpnɪŋ]	отверстие
operate, v	['ɒpəreɪt]	работать
operation, n	[ˌɒpə'reɪʃn]	работа
order, n in order to	['ɔ:də]	порядок чтобы
orifice, n	['ɒrɪfɪs]	отверстие
output, n	['aʊtpʊt]	выход
overall, a	['əʊvərɔ:l]	общий
overcome (overcame, overcome), v	[ˌəʊvə'kʌm]	преодолевать
overload, v	[ˌəʊvə'ləʊd]	перегружать
oxidation, n	[ˌɒksɪ'deɪʃn]	окисление
oxygen, n	['ɒksɪʤən]	кислород
P		
packing, n	['pækɪŋ]	упаковка
particle, n	['pɑ:tɪkl]	частица
partly, adv	['pɑ:tlɪ]	частично
pass, v	[pɑ:s]	проходить
passage, n	['pæsɪʤ]	проход, прохождение
penetrate, v	['penɪtreɪt]	проникать
perforate, v	['pɜ:fəreɪt]	перфорировать
perform, v	[pə'fɔ:m]	выполнять
piston, n	['pɪstən]	поршень
plane, a	[pleɪn]	плоский
plant, n steam power plant	[plɑ:nt]	электростанция ТЭС
platform, n floating platform	['plætfɔ:m]	платформа плавающая платформа
plugging, n	['plʌgɪŋ]	закупоривание
plunger, n	['plʌnʤə]	плунжер, толкатель, поршень
point, n v point out	[pɔɪnt]	точка указать подчеркнуть

port, n	[pɔ:t]	порт, входное отверстие
portion, n	['pɔ:ʃən]	часть
power, n power station	['paʊə]	сила, мощность электростанция
precede, v	[prɪ'si:d]	предшествовать
pressing, a	['presɪŋ]	срочный
pressure, n exhaust pressure	['preʃə]	давление давление на выходе
prevent, v	[prɪ'vent]	предупредить, предотвратить
processing, n	[prə'sesɪŋ]	обработка
production, n	[prə'dʌkʃn]	производство
productivity, n productivity of labour	[ˌprɒdək'tɪvɪtɪ]	производительность производительность труда
proof, n	[pru:f]	доказательство
proper, a	['prɒpə]	правильный
property, n	['prɒpətɪ]	свойство
prove, v	[pru:v]	доказать
provide, v	[prə'vaɪd]	обеспечить
pulverized, adv	['pʌlvəraɪzd]	распыленный
pump, n feed pump v	[pʌmp]	насос питательный насос накачивать
purpose, n	['pɜ:pəs]	цель
Q		
quality, n	['kwɒlɪtɪ]	качество
quantity, n	['kwɒntɪtɪ]	количество
R		
raise, v	[reɪz]	поднимать
range, n	[reɪndʒ]	ряд, диапазон
rate, n	[reɪt]	скорость
ratio, n	['reɪʃɪəʊ]	соотношение
reach, v	[ri:ʧ]	достигать
read (read, read), v read up for	[ri:d]	читать готовиться к
receive, v	[rɪ'si:v]	получать
recently, adv	['ri:səntlɪ]	недавно
reciprocating engine, n	[rɪ'sɪprəˌkeɪtɪŋ 'enʤɪn]	поршневая машина
recognition, n	[ˌrɪkə'gnɪʃən]	признание
reduce, v	[rɪ'dju:s]	сокращать
reduction, n	[rɪ'dʌkʃən]	уменьшение
refractory, a	[rɪ'fræktərɪ]	огнеупорный

regard with regard to	[rɪ'gɑ:d]	 относительно
region, n	['ri:ʤən]	область
reheater, n	[rɪ'hi:tə]	подогреватель
relation, n	[rɪ'leɪʃən]	отношение
release, v	[rɪ'li:s]	освобождать, выделять
relieve, v	[rɪ'li:v]	освобождать, облегчать, умень-шать
remain, v	[rɪ'meɪn]	оставаться
remove, v	[rɪ'mu:v]	удалять
replace, v	[rɪ'pleɪs]	заменять
require, v	[rɪ'kwaɪə]	требовать
research-worker, n	[rɪ'sɜ:ʧ 'wɜ:kə]	исследователь
resistance, n	[rɪ'zɪstəns]	сопротивление
resistant, a heat resistant	[rɪ'zɪstənt]	устойчивый жаростойкий
rest, n at rest	[rest]	покой в покое
result, v result in result from	[rɪ'zʌlt]	образовываться привести к образовываться в результате
return, v	[rɪ'tɜ:n]	возвращать(ся)
reverse, a	[rɪ'vɜ:s]	обратный
revolve, v	[rɪ'vɒlv]	вращаться
rise, v n	[raɪz]	расти рост
rock, n	[rɒk]	порода
row, n	[rəʊ]	ряд
rub, v	[rʌb]	тереть
S		
saturate, v	['sæʧəreɪt]	насыщать
saturation, n	[ˌsæʧə'reɪʃən]	насыщение
scale, n scale free	[skeɪl]	накипь, окалина лишённый накипи
scintillation, n	[ˌsɪntɪ'leɪʃən]	вспышка
screen, n	[skri:n]	решётка
seasonable, a	['si:zənəbl]	сезонный
select, v	[sɪ'lekt]	отбирать
separate, v	['seprɪt]	отделять
separation, n	[ˌsepə'reɪʃn]	разделение
series, n in series	['sɪəri:z]	серия последовательно
setting, n	['setɪŋ]	облицовка

several, adv	['sevərəl]	несколько
sewer, n	['su:ə]	коллектор, сточная труба
shaft, n	[ʃa:ft]	вал
shape, n	[ʃeɪp]	форма
shell, n	[ʃel]	корпус, кожух
side, n	[saɪd]	сторона
similar, a	['sɪmɪlə]	подобный
simultaneous, a	[,sɪməl'teɪnjəs]	одновременный
single, a	['sɪŋgl]	единственный, одиночный
size, n	[saɪz]	размер
slag, n	['slæg]	шлак
slagging, n	['slægɪŋ]	ошлакование
slightly, adv	['slaɪtlɪ]	слегка
smokelessly, adv	['sməʊklɪslɪ]	бездымно
solve, v	[sɒlv]	решать
space, v n	[speɪs]	располагать пространство
spaceship, n	['speɪsʃɪp]	космический корабль
spacing, n	['speɪsɪŋ]	занимаемая площадь
specification, n	[,spesɪfɪ'keɪʃn]	характеристика
speed, n	[spi:d]	скорость
spring, n	[sprɪŋ]	пружина
stage, n pressure stage	[steɪʤ]	ступень ступень давления
stationary, a	['steɪʃənərɪ]	неподвижный
steam, n exhaust steam vented steam	[sti:m]	пар мятый пар выпар
stocker, n chain-grate stocker spreader stoker	['stəʊkə]	стокер, механический загрузчик топлива механическая топка с цепной решёткой топка с разравнивающей решёткой с непрерывным удалением золы
store, v	[stɔ:]	хранить
straight, a	[streɪt]	прямой
stress, n	[stres]	нажим, напряжение
stroke, n	[strəʊk]	удар
substance, n	['sʌbstəns]	вещество
successfully, adv	[sək'sesfʊlɪ]	успешно
suction, n	['sʌkʃən]	отсос
sufficiently, adv	[sə'fɪʃəntlɪ]	достаточно

suggest, v	[sə'ʤest]	предлагать
suit, v	[sju:t]	подходить, годиться
suitability, n	[ˌsju:tə'bılıtı]	пригодность
superheater, n convection superheater radiant superheater	['sju:pə'hi:tə]	перегреватель конвекционный перегреватель радиационный перегреватель
supplement, v n	['sʌplımənt]	добавлять, дополнять добавление, дополнение
supply, n v	[sə'plaı]	подача, снабжение подавать
support, v n	[sə'pɔ:t]	поддерживать поддержка
suppose, v	[sə'pɔ:z]	предполагать
surface, n	['sɜ:fıs]	поверхность
surround, v	[sə'raʊnd]	окружать
suspend, v	[səs'pend]	подвешивать
T		
take (took, taken), v take care of take into consideration take notes take part take place	[teık]	брать заботиться о учесть конспектировать принимать участие иметь место, происходить
tank, n surge tank	[tæŋk]	резервуар уравнительный резервуар
thermal, a	['θɜ:məl]	тепловой
thick, a	[θık]	толстый
thin, a	[θın]	тонкий
thunderstorm, n	['θʌndəstɔ:m]	гроза
tip, n	[tıp]	конец
top, n	[tɒp]	верх
total, a	['təʊtəl]	общий
train, v	[treın]	подготавливать
transfer, v n	['trænsfə] [træns'fɜ:]	передавать передача
transformer, n step-up transformer	[ˌtræns'fɔ:mə]	трансформатор повышающий трансформатор
transmission, n	[trænz'mıʃn]	передача
tray, n	[treı]	поддон, желоб
treatment, n	['tri:tmənt]	обработка
trouble, n	[trʌbl]	помеха
tube, n	[tju:b]	труба

tubing, n	['tju:bɪŋ]	система труб, трубопровод
turbine, n automatic extraction turbine impulse turbine reaction turbine single-cylinder turbine	['tɜ:bɪn]	турбина турбина с регулируемым отбором активная турбина реактивная турбина одноцилиндровая турбина
turbulence, n	['tɜ:bjʊləns]	турбулентность
turn, v n	[tɜ:n]	вращать оборот
U		
unit, n steam generating unit	['ju:nɪt]	установка парогенератор
upper, a	['ʌpə]	верхний
up-to-date, a	['ʌptədeɪt]	современный
upward, adv	['ʌpwɜ:d]	вверх
V		
vacation, n	[və'keɪʃən]	каникулы
valuable, a	['væljʊəbl]	ценный
value, n	['væljʊ]	величина
valve, n relief valve	[vælv]	клапан разгрузочный клапан
various, a	['vɛərɪəs]	разнообразный
vary, v	['vɛərɪ]	меняться, быть разным
volatile, a	['vɒlətaɪl]	летучий
voltage, n	['vɔ:ltɪdʒ]	напряжение
volume, n	['vɒlju:m]	объём
volute, n	[və'lu:t]	завиток, спираль, спиральный корпус
W		
wall, n	[wɔ:l]	стенка
waste, n	[weɪst]	отходы
water, n fresh water	['wɔ:tə]	вода пресная вода
way, n	[weɪ]	способ, путь
weather, n	['weðə]	погода
weigh, v	[weɪ]	весить
weight, n specific weight	[weɪt]	вес удельный вес
wet, a	[wet]	мокрый
wheel, n	[wi:l]	колесо
winding, n	['waɪndɪŋ]	намотка
wire, n	['waɪə]	провод

СОДЕРЖАНИЕ

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