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**ЗАДАНИЕ 5**. **Контрольные работы**;

**Факультет Иностранных языков**

**Предмет Теория и практика перевода**

**Курс III, IV**

**Ex.1. Translate the text into Russian:**

1.Our Sun, although it is not the largest star in our universe, is a gigantic body. If we make a non-stop flight around it in an airplane at a speed of about 300 km per hour, it will require 565 days to go around it at the equator. The diameter of the Sun is 1,391,000 km, that is, 19 times that of the Earth. The Sun has a surface temperature of about 6,000 °C.

Modern research into the atom indicated that under certain conditions the matter itself may be transformed into energy. It is now thought that the sources of the sun’s energy result from nuclear fissions and is practically unlimited.

Man has used and is still using solar energy through photo­synthesis as one of his sources of heat and power. Another way to use solar energy is in the solar, machines; still another is the use of solar heat for cooking and house heating. The future will undoubtedly bring us a lot of new applications of solar energy.

2. **Translate into Russian, pay attention to the attribute word combinations.**

1. The **coal mining** industry is one of leading branches of the national economy in the country. 2. **Underground hydraulic** mining is used at some mines. 3. The **conventional longwall** method is applicable to the seams of all inclinations. **4. Longwall advancing** and **longwall retreating** workings are the **two main mining** methods employed at our coal mine. 5. **Room-and-pillar** working is greatly favoured in the United States of America.

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| **Ex.2. Translate the text into Russian:** |

A mobile phone (also called mobile, cellular telephone, or cell phone) is an electronic device used to make mobile telephone calls across a wide geographic area. Mobile phones are different from cordless telephones, which only offer telephone service within a limited range of a fixed land line, for example within a home or an office. A mobile phone can make and receive telephone calls to and from the public telephone network which includes other mobiles and fixed-line phones across the world. It does this by connecting to a cellular network owned by a mobile network operator. In addition to functioning as a telephone, a modern mobile phone typically supports additional services such as SMS (or text) messaging, MMS, e-mail and Internet access; short-range wireless (infrared or Bluetooth) communications; as well as business and gaming applications, and photography. Mobile phones that offer advanced computing abilities are referred to as smartphones.

The first handheld mobile phone was demonstrated by Dr. Martin Cooper of Motorola in 1973, using a handset weighing 2 kg. In 1983, the DynaTAC 8000x was the first to be commercially available. In the twenty years from 1990 to 2010, worldwide mobile phone subscriptions grew from 12.4 million to over 4.6 billion, penetrating the developing economies and reaching the bottom of the economic pyramid. All mobile phones have a number of features in common, but manufacturers also try to differentiate their own products by implementing additional functions to make them more attractive to consumers. This has led to great innovation in mobile phone development over the last 20 years.

The common components found on all phones are: a battery, typically rechargeable, providing the power source for the phone functions, an input mechanism and display to allow the user to interact with the phone. The most common input mechanism is a keypad, but touch screens are also found in some high-end smartphones. Basic mobile phone services to allow users to make calls and send text messages. All GSM phones use a SIM card to allow an account to be swapped among devices. Low-end mobile phones are often referred to as feature phones, and offer basic telephony, as well as functions such as playing music and taking photos, and sometimes simple applications based on generic managed platforms such as Java ME or BREW. Handsets with more advanced computing ability through the use of native software applications became known as smartphones.

**Ex.3.Translate the text into Russian:**

The first smartphone was the Nokia 9000 Communicator in 1996 which added PDA functionality to the basic mobile phone at the time. As miniaturization and increased processing power of microchips has enabled ever more features to be added to phones, the concept of the smartphone has evolved, and what was a high-end smartphone five years ago, is a standard phone today.Several phone series have been introduced to address a given market segment, such as the RIM BlackBerry focusing on enterprise/corporate customer email needs; the SonyEricsson Walkman series of musicphones and Cybershot series of cameraphones; the Nokia Nseries of multimedia phones, the Palm Pre the HTC Dream and the Apple iPhone.Other features that may be found on mobile phones include GPS navigation, music (MP3) and video (MP4) playback, RDS radio receiver, alarms, memo recording, personal digital assistant functions, ability to watch streaming video, video download, video calling, built-in cameras (1.0+ Mpx) and camcorders (video recording), with autofocus and flash, ringtones, games, PTT, memory card reader (SD), USB (2.0), dual line support, infrared, Bluetooth (2.0) and WiFi connectivity, instant messaging, Internet e-mail and browsing and serving as a wireless modem.

**ЗАДАНИЕ 6**. **Контрольные работы**;

**Факультет Иностранных языков**

**Предмет Теория и практика перевода**

**Курс III, IV**

**I. *Translate the following sentences with emphatic inversion.***

1. It is the program that ensures the execution of all operations assigned to the computer. 2. It is the programmist that is the connecting link between the computer and the problem it has to solve. 3. It was not until the 20lh century that electronic computers were constructed and put into operation. 4. It was 50 years ago, when the first relay machine capable of adding two 23-digit numbers in 0,3 sec was completed.

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 **B. If he had known the subject better, he wouldn't have failed in his exam. Had he known the subject better, he wouldn't have failed in his exam.**

**II.** If it were necessary to increase the speed of this particular engine, it could be achieved by using a special device. 2. If the road had been better, we should have been here in due time. 3. If the engineer had been informed of the results before, he would have allowed you to repeat the test. 4. If we had used new methods, we should have saved much time. 5. The plan would not have been fulfilled in time if the people had not worked with such energy. 6. If the oil supply had stopped even for a moment, serious damage might have resulted. 7. If the mechanic were there, he would repair the equipment. 8. If the air within the cylinder were motion less, only a small proportion of the fuel would find enough oxygen. 9. If the book on that subject were available in our library, I should be able to make a good report. 10. If he had all the necessary materials, he would accomplish his model in time.

**III**. ***Translate the following sentences with the inversion****.*

1. Discussed in this chapter are some of the general characteristics inherent to semiconductors. 2. Included in this section is a description of a typical airborne liquid oxygen system. 3. Shown on the photo is the equipment available at many airports to start piston-engined aircraft. 4. Described in this book are all the rockets space-probing craft including the sputniks. 5. Associated with each electron is a wave, which is propagated in the direction of the motion of the electron.

**IV. *Translate the following sentences with the construction "have+noun+participle ".***

1. Machines of many types **have their operation controlled** by a computer. 2. A colliding molecule **may have an atom or two knocked out** of it. 3. The theory of atomic structure developed by Bohr **has the electrons distributed** around the nucleus in shells (orbits). 4. The large air-cooled engines **have the cylinders arranged** radically. 5. An atom which **has one or more of its electrons raised** to a higher than normal energy level is said to be in an excited state. 6. Current transformers are step-up transformers **having their primaries connected** in series with one line and **their secondaries connected** to the ammeter terminals.

**V**. ***Translate the text in written form.***

Nokia and the University of Cambridge demonstrated a bendable cell phone called the Morph. Some phones can make mobile payments via direct mobile billing schemes or through contactless payments if the phone and point of sale support Near Field Communication (NFC). Some of the largest mobile phone manufacturers and network providers along with many retail merchants support, or plan to support, contactless payments through NFC-equipped mobile phones.

 **VI. *Give Russian equivalents to the international words and "pseudo friends" of the translator.***

Director, gymnasium, medal, pedagogical, master, commission, congress, professor, technological, bureau, contribution, container, nation, periodic, element, principle, inorganic, combination; alcohol, aqua, specific (gravity), physics, geophysics, patriot, energy, activity, progress, **industry, thesis, general, generalization.**

**VII. *Translate the following word combinations into Russian.***

long-distance power transmission, radio transmitters, alternating current generators, wire cable, heat losses, power line, transmission line, at the city end, a high-class receiver, high-quality reception, ultrahigh frequencies, high-frequency loudspeaker, high-fidelity acoustical system, high and low tones.

**ЗАДАНИЕ 7**. **Контрольные работы**;

**Факультет Иностранных языков**

**Предмет Теория и практика перевода**

**Курс III, IV**

**1. Translate the sentences, paying attention to the words in the bold type.**

**Load**

a) The lorries were **loaded** mechanically. b) The **load** weighs a hundred kilograms. c) They **loaded** us with work.

**Oil**

a) Every machine needs **oiling.**

b) Water is heavier than **oil.**

c) What sort of **oil**is there at this service station?

**Fuel**

a) What kind of **fuel**is used in these motor cars?

 b) We had to stop to **fuel**the car.

 c) This passenger car needs **fuelling**every 300 miles.

**Design**

a) He is working on the **design**for a new machine. b) The architect is **designing**a new school. c) The icebreaker is designed for operation in Arctic waters.

**2.** **Translate the following words combinations into Russian.**1. a reliable insulator; 2. to create reliable insulator; 3. artificial radioactivity; 4. artificial admixtures; 5. a fruitful discussion; 6. **a**fruitful cooperation; 7. to establish reliable contact; 8. to set the indicator to zero; 9. to set to required frequency; 10. to tune **a**radio-set to **a**low frequency; 11. to tune a receiver to the required frequency; 12. to contain a score of parts; 13. thin films; 14. the system control; 15. the computers control; 16. within this region; 17. within this voltage; 18. to achieve good results; 19. to achieve high reliability; 20. to find the difference in pressure; 21. to find unique properties

**3. Translate the text in written form.**

Hundreds of electronic equipments **are now available to science** and various industries help to do jobs better or more economically or **to take over jobs** that could not be done otherwise.

The application, use, and proper **maintenance** of the many electronic types of equipment now in industrial use **demand certain knowledge to be of the fundamentals** of various standard electronic equipments.

We already know that in motors, **incandescent lamps, transformers,** etc., the electricity always flows in the copper wire or other metal parts. But consider lightning, where electricity **seems to jump through space.**The great electric pressure of lightning forces the electric current to pass through the air. **In the same**way, inside any radio tube, tiny electric currents are made to pass through the space separating certain parts in the tube. Such action — where electricity appeal's to flow through space instead to being confined to metal conductors or circuits — is said to be electronic.

Why is it called electronic? Years ago, scientists who were trying to explain how electricity passed through space, imagined such an electric current to be a steady stream of tiny electrical particles. They called these particles electrons. Today, any electric current is believed to consist of countless number of electrons. Only when electricity passed through space, when the stream of electrons **comes out of the metal into the open,** is such action said to be electronic. A device is called electronic; electricity must flow across the space inside the device and be controlled by that device.

In ordinary air, electrons can be made be jump through space only by pressure of high voltage. But if it enclosed in a tube from which the air has been removed, the electrons flow across the space more easily. All tubes must be carefully sealed for the desired conditions to be maintained inside the tube. Most of the small tubes are **vacuum tubes** the large ones usually containing mercury or other vapour.

Some electric lights are electronic. The common incandescent light bulb is not considered as electronic though it is enclosed like a radio tube, for the electric current flows entirely within the metal **filament.** In contrast, the fluorescent lamp is electronic, its light is produced by the action of electric current flowing through the space between the two ends of the lamp.

Electronics as a science is not new, for radio, sound picture fluorescent light, etc. are known to depend upon electronics.

**ЗАДАНИЕ 8**. **Контрольные работы**;

**Факультет Иностранных языков**

**Предмет Теория и практика перевода**

**Курс III, IV**

**I.** ***Translate the following sentences with the construction "have+ noun+infinitive ".***

1. It is necessary **to have the personnel be aware** of the dangers involved in operating such a device. 2. Slow neutrons can be detected by **having them interact** with an isotope of boron. 3. The advantage gained by having specialized groups concentrate on various tasks is obvious. 4. The main advantage of the auto transformation is the saving of copper obtained by having part of the winding serve as both primary and secondary. 5. In the early days of aviation, engines were small and could be started by having someone turn the propeller by hand. 6. Because of the many types of turbine engines, it is not possible to list all the major components and have the list apply to all engines.

**II.** **Translate the text into Russian in written form.**

**SUPERCONDUCTIVE ELECTRIC CABLE**

A superconductive electric cable was made by the research workers at the Power-Engineering Institute. It is a very useful device and its main property is its being cryogenic. Compared with other types of cables, it has a great advantage – its use will result in transmitting current practically without losses, which is of great importance since nowadays percentage of losses in transmitting electronic power over long distances is rather high; it is ten percent and even more.

The properties of the new cable being unique, electric current up to 10.000 amp at 10.000V and more can be transmitted over long distances. The superconductive cryogenic transmission lines are especially efficient for Russia: the power resources of the country are known to be concentrated mainly in the eastern parts of the country while three-quarters of the industrial potential are concentrated in the European part.

**III.** **Translate the text into Russian**

We want you to take into consideration that voltage, resistance and capacity are the three important properties to influence the flow of current in an electric circuit. 2. Among the possible sources of power for engines one has to consider the possible of applying atomic energy. 3. If the same cyclotron is to be used for the acceleration of different particles, the necessary adjustment may be made in two ways. 4. This device does not seem to operate because the voltage in the circuit is small. 5. We watched the operator solve a number of complicated problems by using a computer. 6. There are many factors to be taken into consideration when designing a spaceship

**IV. Translate the following sentences.**

1. It is surprising how simple many problems of physics become once the meaning of each concept involved is completely understood. 2. At ordinary atmospheric pressure helium, once liquefied, remains liquid to the lowest temperature that can be reached. 3. Before taking off the pilot checked his control once more. 4. The thrust magnitude and direction are at once known in terms of the motor performance. 5. It should not be thought that Newton's theory of gravitation was at once universally accepted.

**ЗАДАНИЕ 9. Контрольные работы**;

**Факультет Иностранных языков**

**Предмет Теория и практика перевода**

**Курс III, IV**

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| **I. Translate the text into Russian:** |

Electronics is believed to be a rather young and a very promising science. It has become a powerful means of progress. Electronics has widened our vision and given us the chance to see the microworld more clearly.

Electron-optical image **converters**using solid-state components penetrate deep into **opaque**materials, convert invisible radiations to visible, and **pick up** light of negligible intensity. Radiotelescopes are known to collect and to focus the radio waves emitted by **celestial bodies,**revealing new facts about the universe. Of course, radio waves are not the only carriers of information in space.

Modern science knows many more media, which can be employed for this purpose. These are the infrared and ultraviolet radiations, X- and gamma rays, elementary particles and fields, ect. What role will electronics play in space travel? Above all, it will give a deep insight into the properties of outer space.

**II. Translate the text into Russian:**

Radio is thought to help man to know more about the Sun’s atmosphere of many planets, the location, the speed of huge hydrogen clouds in space, and the processes accompanying the **collisions galaxies.** Electronics is expected to enable the astronauts to locate their position in space.

Spaceships will be guided automatically just as planes are controlled by robots today. Electronics is sure to give the space pilots easy control for soft landing on other planets. Collision-warning radars will operate automatic control if there is a danger of meteor hitting the spaceship. Before all this can be accomplished, however, many complicated problems will have to be solved. One problem is that of extending the range of radio communication in outer. With proper **refinements,**radio communication is likely to be set up overdistances of 100 million kilometers or even more.

**III.** **Translate the text into Russian:**

To ensure higher effectiveness and reliability of communication many thousands of scientific experiments were devoted to the investigations of these factors. All scientific achievements in the field of transmitting information over long distances being applied in the system of space communication, real possibilities are opened up **transmitting** tremendous amount of information over distances several hundred million kilometers.

It is expected that greater prospects for constructing even more effective systems for transmitting information in space will be opened with the application of methods and means of quantum electron and especially of quantum generators.

Transistors made it possible to design compact, small-dimensioned electronic devices which consume very little power. The transistors are used for direct transformation of heat energy into electrical energy by means of thermal elements. They are also used to transform radiant energy into electricity with the help of photocells or so called solar batteries. In later years light sources and lasers were built on the basis of transistors.

Transistors revolutionized radio engineering and electronics. Having small size and other properties, transistors make it possible to produce devices which cannot be made with vacuum tubes. Transistors are extremely sensitive to external influences, thousandths of one per cent of admixtures changing their electrical conductive properties by hundreds of thousands times. They are very sensitive to the action of light, nuclear particles, pressure, etc.

Transistors being sensitive to light, engineers have to take this property into consideration. Some transistors act as insulators in the darkness, cadmium sulphide presenting one of them. But already under ordinary room temperature their resistances decrease millions of times. This property was used as the basis for making so called photoresistances. Some of them react not only to visible light but also to ultraviolet, infrared and X-rays, and radioactive radiation. At present such photoresistances, being very small in size, are successfully used as the main elements for various measuring instruments and automatic devices. The supply of transistors is inexhaustible. But up to now only a limited number of them is being used for engineering purposes. Semiconductors are — germanium, silicon, selenium and some of the simple compounds, like lead sulphide and arsenic and phosphoruses with indium and gallium. The electrical properties of germanium may be changed, provided the latter is exposed to light.

A very fine technology has been developed for obtaining transistors with preset physical properties by introducing into them admixtures of gold, copper, nickel, zinc, etc. Scientists have had considerable success in developing special films which protect the transistor crystals from outer influences and change their properties, these films making it possible to create a new family of miniaturized instruments.

**ЗАДАНИЕ 10** .**Контрольные работы**;

**Факультет Иностранных языков**

**Предмет Теория и практика перевода**

**Курс III, IV**

**I. Translate the text in written form*.***

 **WHAT IS CYBERNETICS?**

Cybernetics is hard to define. The word "Cybernetics" is known to have originated from the Greek — meaning control. Cybernetics was defined by Wiener as "the science of control and communication, in the animal and the machine, coordination, regulation and control being its themes".

Scientists know cybernetics to be a theory of "machines", but it treats not things but ways of behaving. It does not ask: "What is this thing?" but "What does it do?"

Cybernetics started by being closely associated in many ways with physics. It deals with all forms of "behaviour" in so far as they are regular or determinated, or reproducible. It takes as its subject- matter the domain of "all possible machines". What cybernetic! is the framework1 on which all individual machines may be ordered, related and understood. It is known to have found many applications in different fields of science, technique and economics. It should be kept in mind2 that it offers a single vocabulary and single concepts suitable for representing the most diverse types of systems.

 **II. Translate the text in written form.**

**The introduction of the zero**

 to the European mathematics was an essential contribution to modern technological development. The concept of symbolically representing "nothing" in a numerical system is considered to be one of man's greatest intellectual achievements.

Various peoples throughout the world have used systems of counting without having the zero. The classical Greeks used different letters of their alphabet to denote numbers from 1 to 10 and each of the multiples of 10. Any number not represented by a s symbol was expressed by the sum of the values of severs For example, the number 238 was indicated by writing symbols for 200, 30 and 8 adjacent to each other.

The Romans used fewer symbols to represent a more limited number of integers such as 1,5,10,50,100,500,1000 and the additive principle to a greater degree. Thus, in writing the number 238 nine individual symbols were required: CCXXXVIII

The zero of modern civilization had its origin in India A.D. By 800 A.D. its use had been introduced to Baghdad, from where it spread throughout the Moslem world. The zero with the rest of our "Arabic" numbers was known in Europe by the year of 1000 A.D., but because of the strong tradition of Roman numbers, there was considerable resistance to its adoption. The zero became generally used in Western Europe only in the ХIV century.

Including the Hindu the concept of the zero with its idea of positional value appears to have been independently arrived at in three great cultures which were widely separated in space and time. About 500 B.C. the Babylonians began to use a symbol to represent a vacant space in their positional value numbers. However, before the idea could be disseminated to other areas, its use apparently died out about 2000 years ago along with the culture that gave it birth.

The Mayas of Central America began using the zero beginning of the Christian era. They have been in possess zero for about a thousand years longer than the Spaniard general, the Mayas were more advanced in many as mathematics than their conquerors.

Modern civilization derives incalculable practical and theoretical benefits from the use of zero.

**III. Translate the text in written form.**

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For hundreds of years people have been dreaming о flights. Yet the dream remained only a dream till 1957 when people sent up the first man-made satellites. The man-made satellites are flying laboratories, equipped with the latest instruments and apparatus. The purpose of these laboratories is to investigate various types of radiations as well as the effects of the state of weightlessness on the human organism in the upper layers of the atmosphere.

The satellites revolve round the Earth just like planets. Their motion is governed by the same laws that govern the Moon's revolution round the Earth and the motion of the Earth round the Sun. Had there been no Earth's gravitation, they would have moved through airless space in a straight line at a uniform speed. It is the gravitation that makes them move round the Earth.

The force of gravitation which affects the satellite has a definite value. To counter-balance this force the satellite must keep to its orbit if it moves at a given speed. This speed must be approximately eight kilometers per second if the satellite moves at a relatively small distance from the Earth's surface.

The force of the Earth's gravitation decreases with the increase in the distance from the Earth. Therefore, a satellite moving along a higher orbit should have a lesser speed. If a satellite moved in different orbits — all within a thousand kilometers from the Earth's surface — the variations in the speed would be relatively small.

In order to be set on its orbit, the satellite has to be sent up at a great height and with the necessary speed. The satellite does not need any additional energy in order to move in its orbit. All it needs is the initial speed given it by the carrier rocket.

If the satellite's speed were much less than the necessary one, the satellite might drop and enter the denser layers of the atmosphere. It would lose its energy because of the friction of the air. If it dropped further and further, it would grow hotter and hotter and finally would burn up in the atmosphere.

The first satellite marked the beginning of the conquest of cosmic space. Now the day has come when manned space ships are leaving and will leave the Earth for distant planets, for distant worlds.

 The word "supersonic" means moving faster than sound. Sound waves travel with a definite speed in any elastic medium. A vibrating source of sound acts on the surrounding particles of the medium, creating compressions and rarefactions that spread out in alternate sequence through the whole area of the medium. The number of compressions and rarefactions following one another in the course of a second determine the pitch at which a sound is heard.

The human ear can register sounds to about 20,000 vibrations per second. Nature, however, has a much greater range of sounds than that. Science discovered the existence of these frequencies in the last century. They were called supersonic, and a method was worked out to produce them in laboratory conditions. At present, scientists in various countries are successfully creating instruments emitting supersonic waves of great intensity at frequencies of several hundred million vibrations per second.

**ЗАДАНИЕ 11** .**Контрольные работы**;

**Факультет Иностранных языков**

**Предмет Теория и практика перевода**

**Курс III, IV**

**Translate the text in written form synoptically.**

**RADAR** The word "radar" means Radio Determination and Ranging. Radar equipment is capable of determining by radio echoes the presence of objects, their direction, range and recognizing their character.

There are several types of radar sets, all of them consisting of six essential components, namely: a transmitter, a receiver, an antenna system, and an indicator), a timer, and, of course, a power supply.

A radar set detects objects by sending out short powerful pulses of ultrahigh frequency radio wave energy from a highpower transmitter. The directional antenna takes this energy from the transmitter and radiates it in a beam (similar to that of a searchlight).

As the transmitted energy strikes an object, a portion of it is reflected back. The receiver picks up the returning echo through its antenna and translates it into visual readable signals on a fluorescent screen. The appearance of these signals shows the presence of an object within the field of view of radar.

The electron beam sweeps across the fluorescent screen in somewhat the same way as a hand sweeps across the face of a clock. Just as the hand of a clock completes its sweep in sixty seconds, the electron beam can be made to travel across any desired portion of the screen in some predetermined interval of time. It is the timer, which is the synchronizer of the whole system, that times the transmitter pulse and the indicator. The use of these timed pulses and the fact that the radio waves travel at the constant velocity of light gives a simple means of measuring range. The accuracy with which time is measured determines the accuracy of the range.

**Ex. II** **Translate the text in written form synoptically:**

How then is the direction in which an object lies to be found? Both azimuth and elevation can be determined by means of the directional antenna. The antenna may be rotated as the pulses are sent out and the strongest signal appears on the screen when the antenna points directly at the object. The direction of the antenna enables the determination of azimuth and elevation. Thus, with the help of a radar set we can get a three-dimensional location of an object.

The wide use of radar sets in our everyday life will make air and sea entirely safe. Radars may be installed on every ship at sea as well as in every large harbour. They will prevent collisions in fog and aid a ship to sail safely into any harbour, regardless of night or weather. Similarly airplanes will be able to fly over mountain ranges in storms and effect blind landing during poor visibility.

One of the excellent properties of supersonic waves is their ability of penetrating metals, alloys and other materials to a great depth. With the help of supersonic detectors we can discover cavities, cracks and other internal faults in metal and ceramics at the depth of over 30 feet. The faults reflect supersonic waves that are recorded on the screen of an oscillograph in the form of an impulse indicating the position of the faults. By means of a supersonic apparatus the thickness of any ob can be measured with great accuracy. Special supersonic e sounders on board a ship help to determine the exact depth of sea, on every yard of the ship's course, underwater, rocks, reefs, and icebergs being discovered in the same way.

Supersonic waves may also be used to bore holes in hard brittle metals. Moreover, they are used of in breaking up and crushing various substances to produce fine emulsions of liquids and me such emulsions being now widely employed in different industries.

Supersonic waves are very sensitive, their speed changing if a medium contains even a small quantity of foreign matter. Special instruments having been constructed on this basis, it became possible to control chemical reactions and technological processes with great precision.

Under the influence of supersonic waves the minute particles of a hard substance in a gaseous medium join together, forming larger particles that fall out of the medium. This principle forms the basis of a method of cleaning smoky air.

Scientists are working on problems connected with the physical nature of supersonic waves and their application in science and everyday life. It is to be hoped that in a few years from now this will bring us many discoveries of still greater importance.