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**(ЕВГЕНИКА И ГЕННАЯ ИНЖЕНЕРИЯ) =
EUGENICS AND GENETIC ENGINEERING**

Методические указания
к практическим занятиям
по дисциплине «Устный последовательный перевод»
для студентов 5-го курса
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I. SPEAKING LEVEL

WARMING UP

FUTURE HUMAN EVOLUTION: EUGENICS, CLONING

Task 1. Predicting and thinking ahead. From the title, guess what the text is going to be about. Air your view on the problem. What do you know about eugenics and cloning? What are the reasons of the controversy? The risks and the benefits?

Try to generate as many ideas as possible, while speaking keep your time and be clear. Your mates or the teacher can tape your speech, so that you can trace your most common mistakes.

II. LEXICAL LEVEL

Task 1. The words given in a bold type will help you understand the text. Guess the meaning of these words from the context. Translate.

1. The Catholic Church has declared that cloning humans is "**repugnant**".
2. We have a new genie and we must think of the right wishes. Trying to put the **genie back in the bottle** is not an intelligent course of action.
3. Ever since the discovery of fire and the wheel there have been those who predicted **dire** consequences from new discoveries.
4. Believing our bodies belong only to God encourages **dereliction** of responsibility for ourselves and our health.
5. And what a tribute it would be to a person to be selected for cloning! It would be like a **request for an encore!**
6. In *in vitro* fertilization many of the fertilized ova or germinal stage embryos have to be **discarded** because they begin to show evidence that all is not well
7. In classic ethical terms, **proponents** of this bill hold that no end for which cloning might be used would justify this means of achieving that end.
8. This discovery **spawned** the Green Revolution, a worldwide farming movement that sought to end world hunger.
9. Even as society pays a **premium** for ability and **gumption** in virtually any form of activity, it has become fashionable to claim



that such factors play no role in the formation of social classes, which are held to be entirely a function of chance and privilege

10. This is the great **watershed** dividing those who favor genetic intervention and those who oppose it.
11. While our social conduct, like that of all other animal species, is necessarily centered around the mating ritual, our perception of this process is governed by a myriad of **camouflaging taboos and fetishes**.

Task 2. In the list below circle the words meaning the same.
Make sure you know the definitions of all the words from the list.

Tamper-deteriorate-debilitate - eliminate

Sorcerer – soccer- magician - dwarf

Genie – genius – gene – spirit

Preposterous – absurd – predetermined

Deride – adore – ridicule - mock

Repugnant – abhorrent – formidable

Pupil – apprentice – teacher- assistant

Sibling – ancestor – brother – sister

Dire - horrible – formidable – terrifying

Boost – bestow – present - lend

Task 3. Listen to the tape. Follow the instructions and try to translate or to give the synonyms of the words and word combinations on the tape. Try as many times as you need. Do the same with the sentences on the tape.

Task 4. Coin your own sentences using a variety of the given expressions. Tape them and translate simultaneously with the class.

III. COMPREHENSION LEVEL

Task 1. Listen to the speech and answer the questions. Check your understanding in the script of the speech, specified below, if needed.

1. What is a biological counterpart of a clone according to the author of the article?
2. What are the ways of overcoming governmental bans according to the article?
3. Why does the author compare politics of total banning to an ostrich, burying its head in the sand?
4. What new responsibilities does ban program impose on the society?
5. Cloning is usually referred to by its proponents as "Playing God". How does the author oppose to this understanding?

6. Enumerate the possible benefits of cloning according to the author.
Task 2. Listen to the text 2. While listening read one of the rhymes you know, or choose one in the Appendix II.

Task 3. Make sure about your profound understanding of the text by means of the given quiz.

1. Until recently, farmers have been limited to selective breeding to _____ strains of cattle, sheep, grapes, or corn.

- A. debilitate
- B. deteriorate
- C. improve
- D. eliminate

2. The selective breeding of humans...

- A. has been practiced since the beginning of recorded history
- B. has never started.
- C. has started in the beginning of the twenty-first century.

3. Techniques for modifying the genetic material within the gametes

- A. bear no opportunities for the future of the humanity.
- B. have unveiled previously inconceivable opportunities.
- C. lurk a variety of dire consequences.

4. In *in vitro* fertilization many of the fertilized ova or germinal stage embryos have to be discarded because

- A. future parents do not want to have them.
- B. there's no need in too much embryos.
- C. they begin to look suspicious as if something did not go well.

5. Having the ability to screen undesirable genes out

- A. is a clear advantage
- B. has nothing to do with the reality
- C. is a pure mystification.

6. Cloning programs are often derided as "eugenics" and then dismissed on the grounds

- A. that there are no funds for their realization.
- B. that many people oppose to the suchlike programs.
- C. that the Nazis practiced eugenics.



IV. PRACTICAL LEVEL

Task 1. Choose one of the articles and essays, given in the Appendix I. Read at home, paying your special attention to some most intricate passages. Write them out, if needed.

In the class listen to the tape and translate your text simultaneously. Tape your translation.

If you find it hard, you may listen to the first text again and repeat after the reader. This will enable you to time your simultaneous translation correctly and to learn to pause.

NOTE: Acquire more practical skills in simultaneous translation by translating the dialogues or short passages from the text. You do not have the scripts to consult, so try hard.

V. PROFESSIONAL LEVEL

Task 1. You are a participant of an international forum discussing the problems of cloning and genetic engineering. Decide on the roles and make up your speeches.

e.g. In the group of eight we have five participants, two interpreters and one secretary to keep the minutes. The interpreters are to wear the speakerphones. The taped reports should be translated simultaneously.

APPENDIX I

Text 1.

Who's Afraid of Human Cloning?

We believe that there should be no laws that ban research into, or production of, human clones. A human clone would be like an identical twin to the adult whose cell was used to create it, but it would of course be much younger. It would be like a delayed twin. The Catholic Church has declared that cloning humans is "**repugnant**". What is so repugnant about it? Is it repugnant to have an identical twin brother or sister? If not, what is the difference? Well, if you have an identical twin it happened by accident. No one made it happen. So how is it perfectly fine and acceptable for something to happen by accident and "repugnant" to have it happen on purpose?

Banning outright even fundamental research for cloning humans, as our U.S. Congress has naively proposed, would be like banning automobiles because they can kill people. There are dangers of course, but like any other technological discovery cloning can be **subjected** to intelligent controls. An

excellent reason for keeping human cloning legal is that a law banning it would be **unenforceable**. Cloning will take place whether such a law is passed or not. If cloning is banned in the United States, it will be done in other countries. In the unlikely event that a worldwide ban were enacted it would be easy to do the cloning illegally in the countries that pretend they have the means to control each of their citizens, or even legally aboard ships in international waters. Having the ability to clone people, together with the associated technologies of genetics, has such immense potential advantages that any country which might ban this technology would be resigning itself to second class citizenship in the scientific world. If the United States fails to lead, many other nations have enough knowledge and resources to develop this new resource.

The U.S. Congress's attempts to ban cloning can be compared to **an ostrich burying its head in the sand** at the approach of a tiger, thinking that if it cannot see the tiger, the tiger is not there. We know the tiger *is* there.

Cloning adds a burden of responsibility. Remember all the stories about the **genie in the bottle**? We have a new genie and we must think of the right wishes. Trying to put the genie back in the bottle is not an intelligent course of action. It is also impossible.

Those who find human cloning **abhorrent** argue that we are "playing God" like Mickey Mouse in "**The Sorcerer's Apprentice**." We find this a most curious if not outright ridiculous notion. When I was a child, my elders warned me not to "**tamper**" with things such as old clocks that no longer ran. They didn't notice that I could disassemble the clock, clean it, reassemble it, and it would run! The Royal Navy discouraged innovation in the building of ships in the early 1800's, one result being that French ships were often of superior construction.

My favorite historical novelist, Patrick O'Brian, tells us in his Aubrey-Maturin novels that there was an aphorism in the Spanish Navy that said, "May nothing new arise!" Ever since the discovery of fire and the wheel there have been those who predicted **dire** consequences from new discoveries. The Greeks thought that if their ships sailed too far from shore, the gods would be angered and would punish them with storms. It was considered "**hubris**" to go too far out to sea! Surely we have learned by now that although new knowledge always has risks, the benefits are worth it. The idea of Pandora's box, which if we open it will release the Furies upon us is an old one, and many "furies" have indeed been released. But the lesson of history is that we are better off to make discoveries and then cope with them.



Another belief expressed by people from traditional religious backgrounds is that our bodies are not our own but "belong to God". There are, indeed, passages in "scripture" that can be interpreted to imply as much. What a ridiculous idea! How **preposterous**!

Believing such a thing encourages **dereliction** of responsibility for ourselves and our health. Perhaps using penicillin is playing God, and eating a balanced diet and having an exercise program is usurping God's ownership of our bodies.

In the short term, cloning will provide unique insights into the role of the environment in the development of human abilities and personality. It will make it possible, in a very real sense, for parents who have lost a child to bring him or her back to life. And what a tribute it would be to a person to be selected for cloning! It would be like a **request for an encore**! And in the long term, cloning and other advances in genetics offer the option of having unusually happy, healthy, friendly, intelligent, and creative people. These scientific advances are likely to turn out to be the most important in history. We may one day control our evolution as a species, as Teilhard de Chardin predicted early in the last century. Such an outcome will eclipse all previous progress in medicine and will offer the promise of **eradicating** hundreds of diseases and improving resistance to hundreds of others. The ultimate benefit is probably unimaginable to most of us. Consider the information revolution for a moment. How many of us foresaw the enormous and all pervading benefits which that revolution would **bestow**? Even Bill Gates once said that computers and telephones didn't have anything to do with each other! This simply shows that it is very difficult to foresee the implications of new scientific advances, even for someone actively engaged in those advances.

Text 2. A Brief Overview of Genetic Engineering

Until recently, farmers have been limited to selective breeding to improve **strains** of cattle, sheep, grapes, or corn. Genetic engineering has opened up a stunning variety of methods to improve any plant or animal species. Attention here will center on the human species. The selective breeding of humans has been practiced since the beginning of recorded history. Noble classes or castes as well as religious, ethnic, and racial groups have attempted to outlaw out-group mating in an effort to maintain some kind of supposed "purity" and also to increase the numbers of the particular group. No one should really suppose that the idea of improving the human species is a new thing. Now, the options for achieving improvement have made a gigantic leap forward. We are no longer limited to the **tedious**

process of selective breeding which requires many generations to achieve observable results. Techniques for modifying the genetic material within the **gametes** (sperm and egg cells) have unveiled previously inconceivable opportunities.

Genes associated with genetically caused diseases have been identified, and it may soon be possible to replace those genes with others in the zygote making the resulting child free of the defect. Also, genetic material can be imported from other species of animals to produce humans having, for example, the chimpanzee's resistance to HIV, or humans who make their own vitamin C as do the Pandas. Science fiction stories in which humans have evolved wings may be a little on the fanciful side, but perhaps teenagers with feathers would add spice to life!

The possibilities are limitless, although the research and development will take time and require funding and public support (rather than fear and legal interference). Recently genetic material from a jelly fish was inserted into cloned monkeys, and some of them actually glowed in the dark!

Opponents of genetic engineering are quick to point out that things can go wrong. Even without genetic engineering things frequently go wrong. **Fetuses** spontaneously abort because of a genetic defect. In *in vitro* fertilization many of the fertilized ova or germinal stage embryos have to be **discarded** because they begin to show evidence that all is not well. (This is somewhat off the subject, but I wonder what the people who want to make abortion illegal think about *in vitro* fertilization. They might want to protest the discarding of defective zygotes and embryos in *in vitro* fertilization labs!)

As we learn more about the role of genes in personality, we may discover that we can prevent numerous kinds of criminality as well as personality types prone to depression or violence. Objecting to such research on the grounds that we might create a person who was too passive is unfair. X-rays can cause cancer, but we still use them because the benefits outweigh the liabilities. The same holds true of genetic engineering.

A common fear is that the government will force genetic engineering on people. We propose nothing more than a program of voluntary genetic counseling. The aim would be to help couples who want to be parents to have the very best child their genes can provide. Who would be opposed to that? Everyone has genes which are more or less undesirable in various ways. Having the ability to screen these genes out is a clear advantage. You could also import genes from a gene bank that would give your child "perfect pitch" or drawing ability, or a complexion free of acne, or athletic ability, or mathematical ability, or . . . the list will no doubt be a



long one indeed when we know a great deal more. A successful voluntary program in time would be so obviously advantageous that everyone would want to participate in it!

Programs like the above are often **derided** as "eugenics" and then dismissed on the grounds that the Nazis practiced eugenics. Many people also avoid Wagnerian opera because Hitler liked it. That is not a rational reason to deprive yourself of Wagner's marvelous music.

The Nazis conducted very bad research on live human subjects based on their racial theories. But that doesn't mean that all research having to do with the genetic makeup of humans is doomed to be as disgusting and incompetent as that research was.

Efforts have been made to get the United Nations to pass a ban on human reproductive cloning. This is a ridiculous measure. It has been said that human cloning would be destructive to human dignity. Those that feel that way can simply resolve not to clone themselves. They should not try to prevent others from following their own concept of human dignity. Others point to the fact that when animals are cloned that some of the clones have birth defects. Someone said that if humans are cloned "something could go terribly wrong." Well, we shouldn't fly airplanes. Every time an airplane takes off something could go terribly wrong. Automobiles should be banned too, because accidents happen. Excessive worrying and hand-wringing offends human dignity. Those with courage think of what can be gained.

Making laws against human cloning offers no benefits, only harm. Such laws **foster** a situation in which cloning procedures will be attempted by scientists before adequate research paves the way for safe and effective methods. The very horrors feared by the U.S. Congress will, due to their interference, become a reality.

Text 3. **EUGENICS the future of society?**

Early in August Mr. Wesley Smith a US lawyer in a visited Australia.

Mr Smith is an attorney for the US anti euthanasia task force, he has appeared on 900 radio and TV programs in the United States

The following is edited interview he gave to a local radio station.

Adult stem cells offer a great hope for the future, while embryonic stem cells research and medical treatment destroys living human beings to take their body parts, thus treating humans as a natural resource ripe for harvesting.

Most scientific breakthroughs come from adult stem cells, although embryonic stem cell research is given far greater media attention, and it seems there is another agenda as the public is not given a full picture by the media.

Embryonic stem cell research is the gateway to cloning of humans.

In the US, President Bush has made a decision not allow federal funding of embryonic stem cell research because future embryos used are destroyed.

One of the great opponents of this, and the attempt to ban all human cloning is the biotech industry. Why? Because embryonic stem cell medical therapy is to go into clinical practice it will require cloning of humans and the lack of funding will restrict research.

Embryonic stem cell medical therapy will be rejected by the recipient's body unless the stem cells are not genetically identical to the recipient as happens in organ transplants.

Therefore embryonic stem cell medical therapy would require an embryo to be taken and inserted with the DNA of the recipient, after 7-14 days the embryo is destroyed by harvesting the embryonic stem cells and injecting them into the patient. This then opens the way to cloning which treats human life as a manufactured product, leading to reproductive cloning by bringing the embryo to term in a woman's body. Once allowed this would be very difficult to stop.

It took 250 attempts to successfully clone Dolly the sheep, which is genetically defective, in fact most clones are genetically defective. A strong moral stand is required to stop human cloning, as it will lead to total moral chaos in the future.

The new eugenicists, or bio-ethicists as they are called, want to control human evolution through cloning, by engaging in genetic manipulation of human clones and making a "more intelligent race." As these people want a gentler race or caring and loving compassionate race is of much lesser importance.

They think intelligence is the most important human trait and history has shown some of the worst people have been the smartest people.

Corporations will gain patents over human life and will marketise the human race. Ralph Nader calls this the new slavery that is treating people like a cattle herd, timber forest or any other commodity.

In future it would be possible for wealthy and powerful people to have living clones made. The cloned person would be reservoir of body parts which would very likely lead to the murder of the clone to obtain these parts.



Text 4. Cloning, SCNT, and the Legislative Moment

Cloning is now often referred to as "somatic cell nuclear transfer," abbreviated "SCNT." To clone, researchers must obtain an oocyte (a woman's reproductive cell) and remove the nucleus (which contains most of the genes, and directions for function). Imagine taking a chicken egg and somehow, without destroying the egg, removing all of the yolk, leaving only the egg white within the shell. Then, a cell (say, a skin cell) is taken from the body of a different adult. Since it comes from the body it's referred to as a "somatic" cell. The nucleus of this skin cell is removed and injected or "transferred" into the enucleated oocyte. This is like injecting it into the de-yolked chicken egg, only on a much, much smaller scale. Stimulated with an electrical charge, the combined materials from the two different cells fuse. The oocyte realizes that it now has a full complement of DNA (instead of the half that it has on its own) and it begins to act as if it's been fertilized. It begins to divide and grow as an embryo. At this point, two things might happen. The embryo could be implanted into a woman's uterus and brought to term. Or it could be used for research. Either way, one has cloned a human.

Currently three pieces of legislation that will determine what, if any, of the above is legal, are competing for votes in the U.S. Senate. One bill calls for a comprehensive ban on human cloning. Should the Senate pass it, cloning human embryos (for any reason) would become illegal in the U.S. In classic ethical terms, **proponents** of this bill hold that no end for which cloning might be used would justify this means of achieving that end.

Others have introduced alternative legislation that tries to distinguish between the purposes to which cloning is put. This legislation would permit scientists to use SCNT to create human clones in their labs, to use them for research and as a source of stem cells. This application of cloning is referred to as "research" cloning or "therapeutic" cloning. But it would ban implanting such an embryo in a womb (or carrying the embryo to term), to prevent what some call "reproductive" cloning.

How could cloning be "therapeutic" (since it certainly isn't therapeutic for the clone)? Advocates claim that stem cells derived from embryos "left over" after in vitro fertilization (IVF) procedures will not be as helpful as some claim, because of the problem of tissue rejection. Therefore, if we are to realize the promise of human embryonic stem cell research (ESCR) for the millions of people who suffer from Parkinson's, diabetes, ALS, spinal cord injury, and so on, patients will need embryos that

match their own individual tissues. In other words, to create a therapy for a patient, the patient will first need to be cloned.

Text 5 Genetically modified products

Humans have been modifying their food for thousands of years. Until the 20th century, this had to be done by breeding desirable characteristics into crops. This method requires a lot of effort and is rather imprecise. Genetic modification has enabled us to add qualities to crops that no amount of traditional breeding could. But in the 1960s, scientists made huge breakthroughs in their understanding of genetics. Many recognized that this new knowledge had the potential to revolutionize food production, creating huge benefits for the world.

The Green Revolution

In 1964, the International Rice Research Institute in the Philippines managed to breed new strains of rice that doubled the yields of previous types. This discovery **spawned** the Green Revolution, a worldwide farming movement that sought to end world hunger. This movement aimed to bring high-yield crops able to thrive in harsh conditions to farmers in the developing world. The Green Revolution dramatically increased the size of harvests and introduced modern farming methods throughout the world. But it couldn't end starvation. Instead, it created many problems of its own.

The fertilizers and pesticides used in this new method of farming caused water pollution, soil erosion and lowered soil fertility. They also harmed biodiversity and made farmers dependent upon chemical companies for their livelihoods.

Genetic engineering

By 1972, another revolution was underway. Biochemist Paul Berg at Stanford University discovered how to join together DNA from two different organisms, creating the first recombinant DNA molecule.

This breakthrough was followed the next year by a pioneering study in which scientists Stanley Cohen and Herbert Boyer inserted DNA from an African clawed toad into the *E.coli* bacterium. However, as soon as the euphoria over these discoveries had subsided, many scientists began to question the safety and ethics of the research. The 1975 Asilomar conference in California was held to discuss these issues. Some biologists argued passionately for a moratorium, or freeze, on genetic research until the safety of the technology could be established. However, this was not passed and the conference delegates agreed to



continue research into genetic engineering. In order to **dodge** regulation of their research by outside bodies, scientists pledged to keep all recombinant DNA and genetically engineered organisms contained safely within laboratories.

First in the field

The first field trial of a GM organism went ahead in 1986. Frostban was a spray containing genetically modified bacteria. In the trials, Frostban was sprayed over a strawberry crop to protect them from frost damage. Frostban was designed to stop the growth of other bacteria that catalyze the formation of ice.

Frostban was tested at a site in Brentwood, California. But this open-air experiment didn't please the local population, who formed a protest group called The Strawberry Liberation Front – the first pressure group opposed to genetic modification.

But in the US, opposition to GM agriculture was short-lived and small-scale. In 1993 the US Food and Drug Administration declared GM food was 'not inherently dangerous', clearing the way for biotech companies to begin marketing modified seed.

First on the shelf

In 1994, the first commercially available GM food appeared on the market. The Flavr Savr tomato was genetically engineered to keep it firm for longer. It was a big hit with consumers. Calgene, the company that made the GM tomato, was overcome by a flawed business plan and the Flavr Savr tomato promptly disappeared from supermarket shelves. Despite this, the Flavr Savr helped US consumers accept GM food. Many people hoped these new advances in food production would generate employment and boost prosperity.

Growing demand

In many parts of the world, farmers have embraced GM crops so enthusiastically that the global area of GM crops has increased 30-fold in six years. The US grows the most, with the remainder largely shared between Argentina, Canada and China. Genetic modification has enabled us to add qualities to crops that no amount of traditional breeding could.

Health food

Scientists have found no evidence that GM food affects human health. But waves of negative publicity about the technology have reinforced the perception that GM foods could be harmful. In fact, many people think eating DNA can be bad for you. But we consume DNA all the time, whenever we eat meat, vegetables or fruit. Nevertheless, the possibility remains that genetic modification could have unforeseen and undesirable effects in the future.

Allergy alert

In 1997, US scientists inserted a gene from a Brazil nut into soybeans to make them more nutritious. But the gene also passed on the property of nuts that causes allergies in people.

Luckily, this was discovered during testing and the project was abandoned. Supporters of GM food use this example to show that modified food is actually safer than normal food because of the rigorous testing it has to go through.

Nutritional gap

In February 2002, the Royal Society, an independent UK body composed of expert scientists, raised concerns that GM foods might cause nutritional deficiencies.

If genetic engineering changed food composition, they argued, it might lower the amounts of certain nutrients in food, such as fatty acids.

They said that this might cause nutritional deficiencies in vulnerable groups such as infants, pregnant women, the elderly and people with chronic disease.

A plague on all our houses

Since the early days of genetic modification, antibiotic resistance genes have been used in the process of making GM organisms. They are usually used as markers to identify organisms that have been modified. But some scientists fear that antibiotic resistance genes could escape from GM crops and enter the genes of other living things such as bacteria.

Could genes put into GM crops cause the next plague?

When people are infected by a population of antibiotic-resistant bacteria, the infection can become impossible to treat. This has sparked fears of new plagues caused by resistance genes getting into the environment.



Studies carried out at Harvard University show that genes can transfer from GM plants to bacteria under laboratory conditions. But, so far, this hasn't been detected in the environment. Most scientists think that the risk to our health from this is remote.

Text 5. Eugenics of the twenty-first century.

Much as we humans might pride ourselves on our achievements, we are really little closer to resolving the great questions of being than when we still dwelled in caves. Time extending endlessly backward or forward is as unimaginable as is time having a beginning or an end. Psychologically, however, we need a map – a concept of being and of our place in the universe – and thus we engage in **elaborate** mythmaking to fill the vacuum that we find so intolerable. To be durable, a worldview must first explain the universe to us, and then assuage our fears and satisfy our longings. Logic is not a **prerequisite**. Myth can even contradict itself – not to mention be at variance with the real world.

Regardless of when or where we live, we inevitably perceive ourselves as the Middle Kingdom, and either we smile **condescendingly** at the mythmaking of other cultures or we go to war with them to force upon them our (uniquely correct) worldview. And if we are better at crafting weapons, we are generally able to persuade those we have physically conquered of the superiority of our myths over theirs.

Until the mid-nineteenth century, the Western world accepted a literal interpretation of the Book of Genesis, but then the theory of evolution presented a radically different explanation of man's origins. Today, attempting to reconcile religion with science, we have created a new mythology which, not surprisingly, is ripe with contradictions. Here are some of them:

- a) While other species of animal and plant can undergo significant change over a few generations, we maintain that thousands of generations of the most radically varying conditions of selection and selective mating have left only the most superficial genetic variance within our species.
- b) Intellectuals (albeit not the man in the street) are firmly convinced that we are the product of evolution, but they are equally **entrenched** in the odd assumption that human beings are the one species no longer affected by that process.
- c) Even as society pays a **premium** for ability and **gumption** in virtually any form of activity, it has become fashionable to claim

that such factors play no role in the formation of social classes, which are held to be entirely a function of chance and privilege. Indeed, the scholars who dominate the publishing marketplace and academia deny the very existence of innate IQ variance in human populations.

- d) We are more and more successfully implementing a process called “medicine” for the elimination of natural selection, and are firmly convinced that future generations will remain unaffected by our reluctance to implement a substitute for natural selection.
- e) Hard at work deciphering the map of the human genome, we continue to apply moral criteria to behavior which we will soon be able to explain scientifically.
- f) While our social conduct, like that of all other animal species, is necessarily centered around the mating ritual, our perception of this process is governed by a myriad of **camouflaging taboos and fetishes**. The gap between reality and fantasy could not be more crass.
- g) We have created a genetic caste society that co-opts talent born into the less privileged castes, efficiently exploiting and manipulating these castes, while at the same time proclaiming equality of opportunity as our slogan.
- h) We refuse to recognize that we are a species that perfectly fits the definition of a disease, freeing itself (very temporarily) from the **constraints** of natural selection and the limitations of natural resources only to wreak havoc on ourselves and our fellow species in a massive assault on the host that we parasitize – the planet.
- i) We have created an unsustainable economy dependent on resource exhaustion. At the same time, we proclaim still greater levels of consumption as the goal of society.
- j) We proclaim freedom of speech, all the while ruthlessly **excoriating** any opinion in the area of human genetics which is found offensive by any significant segment of society.

Thus, the revolution in technology has been accompanied, not by the elimination of myth, but by its modification into a denial of biology. The give and take of any political processes is necessarily determined by the relative power of the participants, so that future generations are not taken into consideration during decision-making.

Despite popular opinion and prejudice, the facts of science are inescapable. In the time you take to read this sentence, humankind will have evolved genetically. There are species such as the coelacanth fish, which – incredibly – has survived more than 400 million years, but they are the rare



exception. Homo sapiens is a recent link in the evolutionary chain, and over the past century the conditions governing selection in that population have undergone revolutionary changes.

Ultimately, we have to decide how pleased we are with ourselves as a species. This is the great **watershed** dividing those who favor genetic intervention and those who oppose it. Regardless of our personal attitudes, however, there is no denying the fact that while the genetic lottery has indeed produced many winners, there are many others who have been less fortunate.

Humankind has entered into the first stages of a revolution in the general understanding of genetic mechanisms, new biotechnologies, and scientific explanation of areas of human health and behavior previously viewed through a **moral prism**. The genie of enlightenment cannot be squeezed back into the bottle of ignorance. The prospect of holding in one's hands in a few years time the complete human blueprint is awe-inspiring, and we must assume that future discoveries in the field of genetics will give us capabilities that we can barely imagine now. Disagreements on what is attributable to nature and what to nurture will seem quaint, and we will have to ask ourselves as a species what to do next, how to achieve, if not utopia, at least something closer to it than we now have, or at the very least how to survive.

Proponents of eugenics see their cause as part of the struggle for human rights – the rights of people who will come after us. Like Martin Luther King, they argue, we may well wonder whether we will ever reach the Promised Land. Perhaps there is no final goal, just the search, but we owe it to our children to begin the journey, to do our best to ensure that they will be born better people than we are, and that they inherit more of our good qualities and fewer of our flaws.

APPENDIX 2

RHYMES AND TONGUE-TWISTERS

1.
An important young man of Quebec
Had to welcome a duchess of Tech,
So he bought for a dollar
A very high collar
To save himself washing his neck.
2.
A school professor confesses:
The secret of all my success is
Not the knowledge
I gained in the college,
But simply some lucky wild guesses.
3.
Dad waited while Mum bought the ham,
But when she came out she said: "Sam,
That one's not our baby",
He answered: "Well, maybe.
But look! It's a much nicer pram!"
4.
Betty Botter bought some butter,
But, said she, the butter's bitter,
If I put it in my batter, it will make my batter bitter,
So she took the better butter,
Put it in the bitter butter,
Made the bitter batter better.
So it was a better Betty Botter, who bought some better butter.
5.
What noise annoys an oyster most?
A noisy noise annoys an oyster most.

Заказ № _____ от « ____ » _____ 200 ____ . Тираж _____ экз.

