

ECOLOGY OF WATER



Gennadiy Berdeshev
Nikolai Deshko
Geza Nagy
Vitalij Demura

ECOLOGY OF WATER

KYIV
2012

УДК
ББК
Э

Gennadiy Berdeshev, Nikolai Deshko, Geza Nagy, Vitalij Demura.

"Ecology of Water" – К.: СПД Павленко, 2012. – 112 p.

Бердышев Г.Д., Дешко Н.А., Надь Г.Г., Демура В.В.

"Экология Воды". – К.: СПД Павленко, 2012. – 112 с.

Э

ISBN 978-966-2370-19-5

This book is dedicated to the new directions of improvements of the quality of drinking Water and the protection of the environment. This work may benefit those who intend to create or already have a business of drinking Water production. The book provides information on a brand new kind of Water which gives health, long life, has an anti-mutagenic effect, protects human and animal gene pool and provides a biological rejuvenation.

УДК
ББК

ISBN 978-966-2370-19-5

© Gennadiy Berdeshev, Nikolai Deshko, Geza Nagy, Vitalij Demura, 2012
© СПД Pavlenko V., 2012
© Design Victoria and Vadim Pavlenko, 2012
© Бердышев Г.Д., Дешко Н.А., Надь Г.Г., Демура В.В., 2012
© СПД Павленко В.Ю., 2012
© Дизайн Виктория та Вадим Павленко, 2012

*"On earth there are three treasures – food,
Water and good words.
But fools consider rocks to be treasure."
Great Chanakya*



Table of Content

Introduction. Water, the foundation of our world.	9
Quality of drinking Water.	16
Conclusions of the research.	19
Ecology and Technogenic Factors	21
Effects of industrial wastes on the surrounding ecology	25
Seekers of 'living' Water in the 16th century.	27
Answers on How to save Water from contamination.	28
<i>Melted</i> Water	29
Some Methods of Obtaining Healing <i>Melted Water (HMW)</i>	38
Fresh melted Water (FMW) and its usage in medicine.	42
Obtaining Living <i>Melted</i> Water at Home.	50
Water with a Low Content of Deuterium and Tritium in Nature.	51
Installation of Unit "Nadia" Sheds light on Healing Water.	53
Water and its oxidant recovery potential. (ORP)	58
Water and Minerals	60
Interpretation of the new project on the basic of modern scientific principles.	66
Introduction to the problem of the quality of drinking Water.	67
Technological and Economical Characteristics of the Units.	69
Parameters of Water cleansing and micro-extraction of heavy isotopes of hydrogen (tritium and deuterium), information on heavy and light Water.	70
Summary of the Project	74
Modern Problems related to provision of quality drinking Water	75
Properties of Water Isotopics and problems of its treatment (Structure of Water)	76
Magnetization of Water	83
Water Structural regulation of the metabolic functions.	88
Results of Units	91
Water – Controlled Longevity and immortal technologies	97
Realization of the Project	108

The Persian Sufis have a legend, once a wise man has predicted that there will come a day when all the Water in the World except the one that is specially collected, will be lost. Then another kind of Water shall come, from which if you drink you shall go mad. Only one person took the prophecy seriously and began to make Water supplies. And the day came and all Water was gone. Then, all the ponds and wells were filled with Water again and people drank from it, and instantly have gone mad. The one who listened to the sage drank from his own Water and retained his mind. So like this he was the last sane among the mad but all others considered him mad. After he drank some of the new Water he lost his mind that instance and all madmen thought that he had obtained it.

INTRODUCTION

WATER, THE FOUNDATION OF OUR WORLD

The beginning of our world started with the condensation of inter-star Waters (OH), formed from giant stars which by slowly contracting burned hydrogen formed stars and planets. Everything started from Water which played the decisive role of forming the Earth and life on it. Water is a very unique substance possessing an incomparable physic-chemical and biological structure. Its phenomenon lies in its composition, extremely mobile and highly sensitive to outer influences of the surrounding environment.

For that reason, there is no chemically clean Water in nature, and its properties, including biological ones, depend on factors encountered beforehand.

Life became possible only after Water had appeared on Earth. If a living organism loses 10% of its Water mass, self-poisoning begins; at 20% the organism dies. A human being can survive without food for 40 days. Yet, without Water, death shall come on the eighth day.

In the depths of Earth, Water carries out humongous work, demolishing rocks and minerals, dissolving salts and re-crystallizing the remains. It takes part in most of the chemical processes happening on the surface of the earth. Water composes all of the hydrosphere, which includes mountains and minerals; and also it is located in all plants and living organisms. Of course Water is also present in the atmosphere, which on the height of 1km from the surface contains up to 2% of Water vapor. Fresh Water accounts for only 0.06% of the available Water resources and amounts to merely 826000 km².

Leonardo Da Vinci (1452 – 1519 A.D.) said, "Only Water has the potential to be called the juice of life on Earth".

Those who look at Water from a narrow point of view looks, see it just as a dissolvent of minerals, vitamins, glucose, amino acids and other body substances. Because of this principle, theoretics do not see the upcoming ecological Water crisis. When it strikes, neither power nor money will matter. Nothing will, except for death- bringing Water which will slowly kill all life on Earth.

Recently, scientist have discovered a new biological structures which are produced by green and blue algae which lives in contaminated Water. These structures are kept even after boiling, chlorination and ozonization, and they severely damage human health. That is why they are called the "devil's bullets" (DV molecules). Information about the DV molecule was kept in secret till the end of the 80s because for national security reasons.

DV molecules get in the human body through food and Water, which consequently causes metabolic disorders, destroys the immune system, stimulates mutations that provoke cancer and intellectual helplessness. Today, there is no territory has not been infected by DV molecules.

In reality, the Water is sick. Death-bringing Water has already been gradually spreading. Water is asking for our protection. We must pay off out debt, since it has given all we need to live.

Water composes 90% of our blood, 75% of our muscles and 20% of our bones. Maybe, if we wrote "Water" with a capital letter, it would be respected, loved and protected in its natural clean. But we lack discipline and morality.

Throughout history, many have dreamed of the legendary Water- the Water of Life which would heal all disease as well as grant eternal youth or longevity. This dream belongs to a long forgotten past of Earth when Water was crystal clear and contained much less tritium or deuterium. At that time our planet was inhabited by humongous plants and creatures such as gigantic lizards roaming freely its surface. Moreover, Water, which had the structure of melted and frozen state, possessed different qualities . As a result, a person who drank it, would live much longer than now.. The uniqueness of Water consisted in the fact that it contained much less heavy isotopes of hydrogen (tritium and deuterium). The problem concerning Water has long Since been noticed. In the 16th century, the English queen Elisabeth I already issued an order and 10,000 shillings reward to those able to invent a cheap way of cleansing Water and turning sea Water into fresh Water. Centuries go by but the question remains as relevant as before, and the technical progress is still drastically destroying Water resources.

According to the statistics of Word Health Organization, nearly

80% of health problems are connected with the consumption of contaminated Water. All scientific research on the topic of longevity of the human being comes up with the same answer: that almost all long-living people drank clean melted Water which ran down rocky ledges of mountains. Also, it is well known that Cleopatra repeatedly visited the northern oasis of Sive where Water was naturally clean. It was there that she received eternal youth, beauty and health. Now that Cleopatra's secret is commonly known, it is time to think how to generate such "living", biologically active Water in big quantities by industrial means.

Today, we would like to introduce a new scientific term, "ecological society", which refers to a group of people living in the same area in the same ecological conditions. Based on this concept we are lead to ecological consciousness which helps us to put the past ethno-national differences behind us. After that an individual will be able to achieve harmony with the surrounding environment. For biologically active "living" Water to be formed in natural places, some factors must occur. Its healing potential lies in its interaction with particular mountain minerals through which it obtains a balanced composition, a high energetic structure and an information field. All the same, due to the constant pollution of Water by industrial wastes, there are fewer and fewer places where innocuous Water can be obtained and their number is decreasing catastrophically fast. The Water which is left clean is indeed not clean at all. On the basis of world statistics, there is:

- 1400 million km² – oceans and seas;
- 1350 million km² – mineral Water 35 g/l;
- polar galciers – 30-40 million km²;
- rivers and lakes – 0,4 million km²
- fresh Water and usable Water, underground fresh and mineral Water under 800m – 4 million km² and at 1600m – 4 million km².

The alternative is to use new scientific achivments which use no chemical reagents for the cleansing of Water. It is known that a healthy cell of a human body has a portion of healthy Water. It encloses a cell and simultaneously protects it from adverse conditions.

Modern medicine states that most important parameter of drinking Water is its "charge", i.e. oxidation reduction potential

(ORP), which should be -70mV . If ORP number falls below the norm, a person gets ill.

The tap Water and plastic or glass bottles have a positive charge of ORP (from $+200$ till $+400\text{mV}$). As a result, the biological structure of our body is subjected to oxidative destruction, giving rise to the wearing of the body, aging and vital organs' dysfunction. The beneficial effects of micro-elements are not only produced by their chemical structure but also by the information Water carries. This can be explained by many factors. Water is a divine, unique and mysterious element of nature; its properties are not fully known or explained. There are still a lot of blank spaces which are to be discovered by science. In July 1988, an article by Jacques Bonvenista was published in *Nature* magazine concerning the laboratory results of the research conducted in 4 countries. He showed that when there is no dissolvent molecule left in Water, a special piece of information is left in the Water structure, which effects its biological activity. This proves that Water has memory: it can save information about all the substances it has come into contact with. In the scientific world, it caused a huge boom. A lot was done to question the result of that research and make it sink into oblivion. It became clear that the scientific world was not ready for it. This was one of the reasons why, half a year before the above mentioned article was published, the achievements of the Ukrainian scientist Viktor Nikolaevich Sarchuk, the so-called "Sarchuk V.N. method of curing different kinds of diseases" was registered in the Soviet Union. The scientist discovered a unique saving attribute of Water – remembering and transferring information. He used an original method of treatment by using biologically active liquid (BAL) – Water with the necessary information, strictly selected for each patient. The treatment gave great results. V.N. Sarchuk's discovery was a great accomplishment for Ukrainian and world medicine. Nevertheless, till this day, unique as it is, the discovery of the structure of Water has not received the proper worldwide attention. It should be noted that Water's ability to remember information, is not restricted to the cases presented.

As it was shown in the results of Macaru Emoto's research from the 90s, Water perceives music, singing, speech, prayer, written and

printed words, and reacts to them. It takes all of the blissful and all negative nature in. The data collected in such research account for a conclusive evidence.

I want to emphasize that good Water (naturally clean), with a low content of heavy isotopes of hydrogen (deuterium and tritium), is primarily important for a grained, semi-liquid substance that fills the interior of cellular structure, also surrounding joints, muscles and organs. Any kind of pollution of the Water structure in the internal environment of the living organism affects the body's natural crystal-hydrogen formation, impairing vital functions of cells and changing the human gene pool.

All this raises a purely practical question: what kind of cleansing should Water undergo in order to change it into health-gaining Water? Is it enough to remove harmful and toxic substances of mutagens and carcinogen (causing the occurrence of mutations which lead to cancer) to create high-class drinking Water beneficial to health? The answer is No! Since it would keep the information about the harmful particles of mutagens and carcinogens in its structure, and therefore Water Would remain "sick".

Modern Water treatment systems do not change the concentration of deuterium and tritium in it. Even after quality purification of such Water, although it is better than not cleaned, it still cannot be considered as "living" Water.

Returning to the issue of quality, small as it is, the amount of the existing fresh Water in the hand of humanity is polluted more and more every single day. The demand for quality drinking Water greatly surpasses the modern day's production ability. And it is a problem in the present day, what will it be like tomorrow? That's why all the task of transforming "dead" Water into "living" is of great importance. It is vital to make Water incapable of providing a person with physical, psychological, moral health and longevity. The "living" Water should be a crucial part of ecological cities of the future, the so-called "ecopolises". This concept has been worked on by many leading scientists of the world.

As part of this strategic objective we should convince world leaders to put their efforts into "making" drinking Water flowing from our tap biologically active, healing, drinkable, without harmful

particles, with living structure and as close as possible to the naturally clean Water with a reduced level of tritium and deuterium. This Water must be capable of protecting our genes from the hazards of chemical, physical and biological nature. It is essential that this Water must reach every house and each inhabitant on the planet. Time is running out, Water and its surrounding nature are trying to survive in this rapidly developing scientific and technological progress. Everyday the amount of tritium and deuterium is rising.

Our world is a gigantic colorful mineral with Water.

In the atmosphere, hundreds of thousands of tons of different mixtures are vaporized and later, by the means of moisture, they return back to Earth. Water played a decisive role in the creation of our planet and, to this day, constitutes one of the most important parts of it. Everything begins and concludes with it.

According to the Bible, all living creatures were created from Water. On the 4th and 5th day of creation by the will of Creator reptiles, birds and beasts were born. As we read In the Book of Genesis 1:20, "And God said, 'Let the Water teem with living creatures, and let birds fly above the earth across the vault of the sky.'"

The United Nations have declared the Decade of Water (2005 – 2014). Also, it is the era of Aquarius, the astrological sign of a person with a pitcher from which Water flows. One cannot help but think that it is "living" Water that he is poring on Earth.

In this book we want to bring to your attention Water filtrated by the technologies of Unit "Krinichka", "Kryzhinka 1", "Kryzhinka 2", "Nadia" and we hope that people of the 21st century will drink it.

Our latest technology is able to convert any polluted Water into a kind which is beneficial to health, with healing potential based on new theories related to drinking Water. It includes all the latest information about obtaining clean, delicious and healthy Water, with a lowered level of tritium and deuterium. This crystal clean "light" Water produced by the Unit "Kryzhinka 2" can be used to significantly enhance the resistance to radiation, greatly slow down developments of malignant tumors ect. No doubt, we should expect good results even as for curing AIDS. The future holds many important discoveries and achievements. In fact, we are all Water and it we should not be indifferent about what kind of Water flows through

our body. Naturally, the problem of safe drinking Water must acquire planetary significance.

Recently, civilizations seeking Water that could provide the information for the self-healing and cleansing of the organism. A wide variety of methods and technologies of Water treatment equipment for Water purification have been created.

Cleaning occurs mostly in an unnatural way. Often with the usage of chemicals which deprive Water of its healing functions. The time has come then Water supply and naturally clean drinking Water production is receiving more attention. The decisions that are to be made are crucial and urgent. Our authors not only present the fact of discovery of obtaining healthy Water but also, as a result of years of research carried out to develop a set of equipments with the aim of widespread usage in various sectors of economy, science and technologies to improve the environment. Its use opens new horizons on producing healthy Water with a low tritium and deuterium level. In fact, they opened a new era in producing drinking Water supply.

This gives a lot of possibilities of usage, starting from individual, local, specific or regional production of bottled Water, filling swimming pools and Water pools, the use of the latter to ensure healthy Water for hospitals and providing new homes with quality Water.

Based on the results of preliminary studies, the usage of "living" Water in agriculture promises a significant increase in productivity of crops, especially vegetable production, poultry and fisheries which will produce biologically clean products.

In the food industry, the usage of such Water will contribute to an advance of technologies in the field and will produce healthy products of high quality.

We believe that the people of the future will be drinking clean, healthy, healing Water which not only meets normal physiological needs but also makes a powerful medicine and an anti-aging elixir.

QUALITY OF DRINKING WATER

Only naturally clean, biologically active "living" Water with a low level of tritium and deuterium is able to optimize the functions of genes which are the basis of human health and longevity.

Nowadays, the world is experiencing a huge technological breakthrough but, at the same time, the Water monitoring technologies are not keeping pace with the new kinds of minerals and toxins in Water, which is causing many of the known and unknown diseases in the world.

Despite the disappointing situation in the Water market, there is a promising future for the development of alternative Water treatment technologies with a great potential to enhance its quality. Modern methods of mineral research can extend the spectrum of individual grain studies. In the studies of Water treatment, one of the crucial factors is magnetic sand which without chemical reagents can remove heavy iron (harmful for human cells). With this new discovery of magnetic sand phenomenon we have the physical ability to extract colloidal, dissolved organic iron and other naturally occurring varieties of complex shaped chemical compounds. There is a new way of producing drinkable Water available which brings it closer to its naturally clean and biologically active form without using any chemicals which would harm it to a greater extent.

The results show that the latest achievements of science and technology are able to use particular minerals to get rid of mutagens and carcinogens and transform Water's memory from "sick" to "healthy", consequently making it healing and biologically active. All this can help to decrease and cure even hereditary diseases. Thus, the overall conclusion of Ukrainian Research Center of Ministry of Health is as follows: "The Water form Unit VIN5 "Krynychka" may be recommended as high-quality drinking Water for the entire population of Ukraine, especially to areas with high ecological pollution, children and health organizations."

In 1993 and 1994 several extensive researches were undertaken in the Institute of Corn of the Ukrainian Academy of

Agrarian Sciences. The institute experimented with the usage of Water with a low content of deuterium and tritium on seeds of legumes, sunflower and wheat. They found out that such Water surpasses fumara and fumarin stimulation of plant growth.

The researches of Ecohygiene and Toxicology Institute of Ministry of Health Ukraine in 1998 revealed the biological activity of Water from Unit VIN7 "Nadia". Five samples were investigated: control – disciplined Water (Table 1), containing the level of deuterium by 5 % than in the Water source, sample 3 and 5 with 9% less. While conducting this research, an express method was applied on the basis of requirements of "Guidelines of methodology on testing Water resources quality" MR No COS PVR 00595.

The method was based on the analysis of the mobility of germ cells in the investigated substances. The mobility of germ cells determine to what extent the substance is biologically active. The index of its toxicity was the average time of the mobility of germs cells to the control sample ratio. The higher the toxicity index was, the more biologically active was the investigated substance. The data presented in the table on biological activity of the samples confirmed that the Water Unit VIN7 "Nadia" which produced Water with a 5 – 9 % lowered content of deuterium had a positive effect on the tested germ cells.

It is clearly indicated by the research above that the Water with a reduced content of deuterium (sample 3 and 5) is biologically active; therefor the Water from Unit VIN7 "Nadia" possesses healing attributes.

Some of the researches undertaken in 2000 were of great interest. Further analysis of the Water received from Units VIN5 and VIN10 "Krnychka", and especially VIN7 "Nadia", was conducted.

In the above mentioned units different kinds of modern technologies are employed. They all have beneficial and healing effect on humans, animals and plants. However, the level of beneficial and healing effects are different in Unit "Krynychka" and "Nadia" (See the Table below).

(Table 1)

**Indicators of drinking Water from Unit VIN10, VIN7
and of healing melted Water**

Indicators	Sample № 1. tap Water	Sample № 2. Water from Unit VIN 10 "Krynchka"	Sample № 3. Water from Unit VIN 7 "Nadia"	Sample 4. melted healing Water	Norms by Ukrainian regulations
Smell, points	1	0	0	0	2
Taste, points	1	0	0	0	2
Colors, degree	6	0	0	0	20
Turbidity mg/dm ²	0,3	0	0	0	1,5
pH	7,6	7,45	8,35	7,6	6,5 – 8,5
Dry remains mg/dm ²	280,2 – 275,3	160,8– 163,5	83,0 – 82,4	64,1–65,5	1000
Stiffness mg/dm ²	5,5 – 5,55	4,05 – 4,15	1,75 – 1,80	1,75 – 1,82	7
Sulfates mg/dm ²	2,0; 2,2	1,0; 1,2	1,3; 1,1	1,2; 1,1	25,0
Chlorides mg/dm ²	6,5; 7,0	5,5; 6,0	5,0; 5,5	5,1; 5,5	250
Nitrates	0,78 – 0,80	H.0	H.0	H.0	45,0

Judging from the solid remains of tap drinking Water from "Krynchky", it cleans 42% – from 275, 280 to 163 160 mg/dm² of non-volatile minerals. Unit "Nadia" brings to attention its low mineral condensation (82 – 83 mg/dm²), especially in the melted heal-

ing Water ($64 - 65 \text{ mg/dm}^3$) generated by our technology. For example, the Water from an experimental Unit of Moscow Institute of Biomedical Problems produces a 60% lowered level of deuterium by the means of electrolysis. This Water was used in experiments on the immune system of guinea pigs. It is well known that deuterium is a hidden toxin for all living organisms, especially for humans. Interestingly, the Water produced by Unit "Nadia" reduced deuterium merely by 9% and yet this Water's biologically active properties were still much higher than the other kinds of the received liquids which contained almost 7 times less deuterium. This analysis shows that Unit VIN 7 "Nadia"'s evaporation-condensation process holds high future prospects for the life support of the population, health treatment and increase in the productivity of the entire agricultural production.

CONCLUSIONS OF THE RESEARCH

1. A fundamentally new way to obtain healing melted Water with a low content of deuterium is being developed. This Water has an anticancer effect, improves blood structure, double the life expectancy of drosophilas, among other positive characteristics. Moreover, it is being discovered how different minerals effect the structure of Water. It Has been validated that Water's contact with pure natural minerals and micro-saturation with minerals results in ordering of Water structure which improves its taste and widens its application in medicine.

2. The technology and process for Unit "Krynychka" is being developed.

3. Project VIN27 "Krynychka" has been launched which aims at producing from 1 to 5 tons of healing drinking Water per hour.

4. The biological effects of Water from Unit "Krynychka" were investigated on plants, animals, drosophilas as well as on humans. All the studies demonstrated high efficiency, which will be described in this work.

5. Unit "Nadia" is designed for received healing Water with a lowered level of deuterium: VIN4, VIN6 and VIN7.

6. The biomedical mobility of germ cells, animals, plants and drosophilas were researched using the Unit VIN7 "Nadia's" Water of a lowered deuterium level. After the experiments the following results were obtained: the cleansed Water improves the structure of blood and hemoglobin indicators, has an anti-cancer effect, increases the mobility of germ cells, effects the growth and development of plants and extends human life. G.D. Berdyshev, one of this book's co-authors, took part in the work of the first-ever team of scientists studying comparative results of light and heavy Water on mankind. Assuming that we drink around 3 liters a day of simple Water, over 70 years of consumption would mean that through a human body flows on average 80 tons of Water containing 12 kg of deuterium and a significant amount of radioactive isotopes of hydrogen and oxygen. This huge amount of heavy radioactive isotopes of hydrogen and oxygen of form the matrix of life. As early as puberty, it starts to effect human genes causing various diseases and initiating the aging process. Such a massive damage to the gene pool by radioactive and heavy isotopes of hydrogen and oxygen of Water will result in the slow extinction of some species of plant, animals and humans.

We must not reprimand the government for not providing quality drinking Water but equip ourselves with a short and effective method for gaining it. The crucial factor is the pace at which we can do so since our drinking Water is getting more and more polluted by every minute. All spheres of economical and industrial sectors in all countries are somehow subjected to the regulation of Water resources. The quality of Water must be the highest and of interest to everyone. A complex international social problem has to be solved concerning a tight control of Water cleansing technologies which would produce naturally clean Water in accordance with international standards ISO 9000 and other standards. At present, Water business (drinking Water) can succeed only through high quality products, since the modern market provides good conditions and it is characterized by increased competition. The competition level will increase in time as everybody is aware that drinking Water is a common problem of survival of human species on Earth and it must be protected.

ECOLOGY AND TECHNOGENIC FACTORS

Pollution of Water and environment does not occur without trace. Today's world community is slowly showing great concern about this issue. In 1970, the world consumption of lead which is the most commonly used element of the world has reached 350,000 tons per year. Petrol emits 80% of lead in the world. All of this lead reaches our environment and the Water we drink.

The rapid growth of environmental pollution is also caused by asphalt factories, which has been discussed in many scientific works. If the current normal level of benzopyrene is equal to 1 in big industrial centers (where people live), it is equal to 340 times the norm and in enterprises zones the benzopyrene pollution exceeds the norms 12 thousand times!

According to scientists, as little as 0,1 mg of harmful substances from diesel engine emission can be fatal. Long-term effects of even a low concentration of these substances affect genes and weaken protective properties of the organism. Up to 10% of the lead which comes through food and Water is sucked up by the stomach. The connections made by lead in relation to other heavy metals are especially dangerous because they are mutagens and carcinogens which have the ability to penetrate the placental barrier. Lead can accumulate in the body of a foetus and create adverse mutagenic and carcinogenic effects on pregnancy and childbirth.

In large cities, 70% of air pollution is caused by gas emission which contains the most of toxic components. These compounds fall to earth and get absorbed by snow which later melts and brings these heavy compounds to Water wells, consequently polluting drinking Water.

In some heavily polluted areas the upper concentration of iron in drinking Water exceeds the normative level. There is no doubt that every person realizes that one of their major health indicators is influenced by clean drinking Water without chemical cleansing.

This is a problem that should be a cause of concern. There is a lot of work to be done as for the provision of high quality drinking Water as a pledge to physical well-being. Several mineral magnetic studies from natural samples of magnetic sand, mineral particle size

and composition studies, magnetic susceptibility, coercive force and Curie temperature experiments were carried out. The results are presented in Tables 2,3,4,5.

The mineral analysis of samples from Georgia are presented in Table 2. Out of the 14 identified minerals pyroxene and magnetite are the main ones. The content of magnetite is 10% titanium. It should be noted that in addition to rather large grains of magnetite and martita, the dark grains contain numerous silty magnetite size of 0.05mm which increase the total content of magnetite by about 0.5 – 1%. Magnetic parameters of this materials are given in Tables 2 – 5.

(Table 2)

Magnetic parameters of minerals

Mineral	Formula	X, Magnetic susceptibility	I_s , Magnitization Saturation, Gf	H_c , Coercivity, E	T_c , Temperature Curie, °C
Magnetite	Fe_3O_4	0,7 – 2,0	490	10 – 150	578
Titano-magnetite	xFe_3O_4 $(1-x)TiFe_2O_4$	$10^{-6} - 10^{-1}$	75 – 430	–	100-578
Trevolite	$NiFe_2O_4$	0,5	240	–	590
Jacobsite	$MnFe_2O_4$	20	320	–	510
Magnesite-ferrite	$MgFe_2O_4$	0,8	140	–	310
Maghemite	γFe_2O_3	0,3 – 2,0	435	10 – 130	675
Hemetite	αFe_2O_3	$10^{-5} - 10^{-4}$	1,5 – 2,5	7000-8000	675
Pyrrhotite	FeS_{1+x}	$10^{-2} - 10^{-3}$	17 – 70	15 – 110	300-325
Gothite	$\alpha FeOOH$	$(0,02 - 80) \cdot 10^{-3}$	4,8	700	–
Lepidok	$\gamma FeOOH$	$(0,9 - 2,5) \cdot 10^{-3}$	–	–	–
Siderite	$FeCO_3$	$(20,0-60,0) \cdot 10^{-6}$	–	–	238

(Table 3)

The mineralogical composition of the samples

Number of Samples:	1 – Magnetic sand (Georgia)	2 – Magnetic sand enriched (Georgia)	3 – Tails after enrichment (Georgia)	4 – Enriched sand (Crimea, Partenit)
Magnetite, %	11	40	1	3
Martite	3H	3H	1	3H
Monocline pyroxene	78	55	87	70
Epidote	3H	3H	1	3H
Light fraction, %	8	2	8	17
Hornblende	3H	3H	3H	
Fe	3H	3H		3H
Garnet	3H	3H		3H
Glauconite		3H		3H
Zircon			3H	3H
Chromite			3H	
Tourmaline			3H	
Staurolite†			3H	

The results of the studies of magnetic sand's grain size composition and the content of magnetite and martite in each fraction are shown in Table 3. For a practical use of magnetic sand it is essential that the fractions of magnetic minerals would be more small-grained than the silicates. In sand samples №2, №3 and №4 substantive content of magnetite is fixed in sand fractions 0,25 – 1mm.

(Table 4.1)

Granulometric composition of sands

Sample Numbers:		Sample 2, weight 12,17 g enriched mag- netic sand (Georgia)	Sample 1, weight 54,32 g tail after enrichment	Sample 4, weight 40,46 g enriched sand (Crimea, Partenit)
>1,0mm	weight, g		0,02	0,02
	exit, %			
	Level of magnetite and martite %			
1,0 – 0,5 mm	weight, g	0,1	0,48	0,72
	exit, %	1	1	2
	Level of magnetite and martite %			
0,5 – 0,25 mm	weight, g	5,02	34,33	30,93
	exit, %	41,2	63	76,5
	Level of magnetite and martite %	3.0 – 5.0		

(Table 4.2)

Sample Numbers:		Sample 2, weight 12,17 g enriched mag- netic sand (Georgia)	Sample 1, weight 54,32 g tail after enrichment	Sample 4, weight 40,46 g enriched sand (Crimea, Partenit)
0,25 – 0,16 mm	weight, g	5,5	18,81	8,67
	exit, %	45	25	21,5
	Level of magnetite and martite %	35 – 40	0,5 – 1,0	7.0 – 9.0
0,16 - 0,10 mm	weight, g	1,5	0,62	0,12
	exit, %	12,3	1	
	Level of magnetite and martite %	90 ± 1	20 ± 1	35 ± 1
<0,10 mm	weight, g	0,05	0,05	0,02
	exit, %	0,5		
	Level of magnetite and martite %	80 – 85	20 – 25	30 – 35

(Table 5)

Magnetic properties of the samples

Sample Number:	Content of magnetic fractions	Magnetic parameters		
		$\chi, 10^{-6}$	$H_c, \text{э}$	$T_c, ^\circ\text{C}$
1. Magnetic sand (Georgia)	Magnetite – 11% signs of martite	4400	144	450, 540, 600
2. Enriched magnetic sand (Georgia)	Magnetite – 40% signs of martite	17600	158	450, 540, 600
3. Tails after enrichment	Magnetite + martite – 1%	600	130	450, 540, 600
4. Enriched sand (Crimea, Partenit)	Magnetite – 3% signs of martite	980	237	580

EFFECTS OF INDUSTRIAL WASTES ON THE SURROUNDING ECOLOGY

For over 200 years now, heavy industry, half of which consists of automobile industry, has been in existence. Automobiles are the largest source of pollution on Earth. The number of cars on highways and in cities is growing every day. We live in a gasoline hell which has been created without us ever contemplating what will happen in the future. They dispose of highly toxic garbage in remote places or simply in fields. When we stop our cars to get out of them for a short moment so we could take a breath of fresh air, we often do it without turning our engine off and then we just return to our seats and rush back to our busy life. At first glance it seems like a trivial thing, but by every day the ecological conditions of our world are getting worse and with them – drinking Water. Transportation, however, is not the only cause of pollution.

Over the past century, the amount of industrial facilities and thermal power plants has grown by a thousand fold. Such a huge increase in the number of internal combustion engines has influenced the amount of acid rain which thins forests responsible for enriching the air with oxygen and important phytoncides. What is worse, numerous factories have dumped untreated and polluted Water into lakes and streams. For some time, nature was able to endure and fight the level of biological infections, but when small, medium and big enterprises have started to dump such high toxic chemical substances by million of cubic meters, the balance was broken. That is why in some countries the cost of bottled or drinking Water equal those of milk or gasoline. If in Tokyo, Japan, you can breathe clean fresh air out of small vending machines, then we can only guess what will happen to drinking Water. What does the future hold for the humankind? Especially urban life is based on communicative opportunities, so good transportation systems are a core essential to a city. Nowadays, the majority of transport in cities relies on electricity as we use trolleys, trams and subways.

Projects initiating electro-mobiles and unique installation of Water cleansing already exist. When these ecologically clean technologies are introduced to the masses, they will improve the quality of life and human health. Western Europe is experiencing a boom in ecologically clean transport. Many steps have already been taken. Huge corporations in automobile industry have started to realize electro-mobile projects. It was an electro-car, Nissan Leaf, that won the contest for the best car of Europe. Another positive example has been given by an American company "Tesla" which produces sport cars that run on electricity and are available for purchase.

Now, for a short while, we would like to draw your attention to diesel fuel. If it is mixed with clean Water which consists of 55% the whole substance will give a positive effect. Renault buses (Nevada) have used this kind of fuel (A55) for long time without any complications. In the process of combustion in the cylinder, Water decomposes into hydrogen and oxygen. To accelerate the dissociation of Water, Rudolf Gennerman suggested to fix a small piece of nickel on each piston or at the cylinder head of the engine so that it would serve as a catalyst. Many a specialist could only

dream of such pure automobile emission but the ratio of cars per person on Earth is increasing and so will there be enough Water for everybody?

In the modern world, Water with a low content of deuterium and tritium is vital to life just like oxygen to breathing. As early as 1958 – 1961, scientists called Rodimova B.N., Torptseva I.N. and Berdesheva G.D. in Tomsk, Russia confirmed this fact with their spectacular experiment on the ice of Siberia and examined its effects on plants, animals and human cells. After 30 years, those experiments were continued in Kiev, Ukraine. All the results have shown that this Water has beneficial effects on human health especially on the young and the elderly.

SEEKERS OF 'LIVING' WATER IN THE 16TH CENTURY

Since time immemorial humans have settled in close proximity to Water. Settlements appeared and disappeared with it wells. Water was given special respect. In ancient times, a spring was a holy place which was decorated and worshiped. Until this day a lot of such places remain sacred and honored to a certain degree. The history know to us shows that numerous groups, the Cossacks being one of them, established their settlements close to Water resources which they treated with great care and responsibility. Their settlements functioned and grew around Water wells or springs. The punishment for polluting the Water was the same as for a monetary debt or contempt of authorities- the abuser was tied to a carriage and, for a certain period of time, was used as tractive force just like a horse. The people who possessed the knowledge of building wells were given huge respect amid Cossacks. There are songs that remained from the Cossacks' times about crystal clear wells and magic Water.

We know of many ancient civilizations which respected Water and built outstanding shrines around it. In many cultures, we still can hear stories,jokes and songs about "healthy","good" or "living" Water that survived to this day.

ANSWERS ON HOW TO SAVE WATER FROM CONTAMINATION

Presently, on basis of new scientific principles and achievements in Water treatment technologies, it is within range of our possibilities to create drinking Water with a lowered level of deuterium and tritium in large numbers.

Thousands of times futurists and poets asked about the future, "What lies ahead of us?"... Sociologists, biologists and doctors asked the question, "Is there a future for mankind?" A man by the name of Strelyev has started to address those questions by his attempt to save the human race with his project introducing "living" Water free of heavy hydrogen isotopes (deuterium and tritium). He represents the Siberian Scientists in Russia who were the first to discover the beneficial properties of "living" Water with a content of deuterium and tritium reduced by 3 – 10%. By adopting the methods of their old technologies, a 1 1/2 liter of light Water could be produced per day. This is an unprofitable and extremely expensive technology. Therefore, a radical change had to be made in order to solve that crucial problem. It was necessary to create a innovative technology on the basis of the newest technologies and scientific principles to seize a chance to stop the uncontrollable pollution of drinking Water, and consequently replace the mutagenic sick Water with clean biologically active Water.

While studying the problems of health and aging, Professor Berdyshev (one of the co-authors) determined that the environment, which mostly consists of Water, has a direct effect on aging of human cells.

Up to the present day, in the world of biology and medical science, the role of Water, its structure and physico-chemical properties continues to remain a "blank spot". Discovering such things could be fundamental for solving problems of people's health and longevity.

Let us get back to the topic of Water. Ice is also Water which in wide range of temperature and pressure consists of eleven classes. It has a very simple structure consisting of two elements – hydrogen and oxygen but its properties are very complex and it is closely connected with many phenomena on our planet.

What is melted Water? It is what we would usually call clean Water. There are several different opinions on ice and melted Water in the scientific world. Antarctic ice which froze 50 – 55 million years ago is considered to be the peak of "pure" Water. Although Antarctica is in possession of huge Water resources, which account for 90% of fresh Water on Earth, it does not have enough to provide for the future mankind. The world has already agreed to leave Antarctica untouched since it holds the most exclusive Water resource of this planet.

A creative team of scientists managed to create a universal high-performance process with a complex modular design which allows to cleanse chlorinated Water containing mutagens, Water coming directly from rivers or seas as well as from underground Water resources, dispose of toxins and heavy isotopes of hydrogen, as a result of which it is possible to receive pure drinking Water. The essence of this revolutionizing project is the discovery of the real possibilities for obtaining "living" Water in huge quantities.

MELTED WATER

Since time immemorial man has been aware of the useful effect of Water in the growth and development of plants and animals as well as on the health of humans. People have taken it for granted.

On our planet there are about half a dozen regions where, on average, people's life expectancy is bigger by 20 – 30 years than the rest. Scientists associate this phenomena with the consumption of *melted* Water from ice flowing down from the mountain tops. For centuries, this kind of Water was called amongst people "living" Water. However, not all *melted* Water can be called "living" which would bring health to people, animals and plants. *Melted* but with a high level of deuterium and tritium and with all sorts of toxic substances is to be considered "dead" Water.

Melted Water retains many properties typical for Water in the form of ice. Let us briefly draw our attention to ice. Admiring the beautiful shape of snowflakes people wonder why they are hexagonal. It turned out that the shape of snowflakes is a manifestation of

hexagonal symmetry which is characteristic of ice crystals. It has been established that the crystalline structure of ice is of hexagonal shape. We should mention that all ice has such a shape, including the one we encounter in everyday life. In the wide range of temperatures and pressures there are 11 structural variants of ice. The most important property of ice crystal is that all H₂O molecules are surrounded by four of their kind. This coordination number (the coordination number of a central atom in a molecule or crystal is the number of its nearest neighbors) equals 4.

If we tightly pack a box full of balls of equal size, the coordination number will amount to twelve since each ball will be in contact with twelve other balls. Other metals that have a similarly close-packed structure are copper, silver, zinc and other metals. In comparison to them, the crystal structure of ice, which has a coordination number of four, has an open structure with unfilled gaps (voids) between molecules of H₂O.

In contrast to ice, Water at 2 – 4° C has a coordination number of 4.4. This explains why its molecular weight is higher than that of ice. At this temperature Water has a more dense molecular structure. Taking into account the temperature ice is similar to a semiconductor. The electrical conductivity of ice lies on the boundary of a semiconductor and a dielectric, but still falls within the category of semiconductors. With the decreasing temperature the electrical conductivity is reduced exponentially, and the electrical charge is conducted by hydrogen's protons, not electrons. Another vital property of ice is its absorption coefficient of electromagnetic waves of different frequencies. It has been proven that ice absorbs virtually zero of the visible specter of light. That is why ice is transparent. However, in the infrared and especially in the ultraviolet areas the absorption coefficient is very high. If our eyes could perceive ultraviolet or infrared, we would see ice as an absolutely black body. Although Water and ice have a very simple composition – they are both composed of hydrogen and oxygen- their properties are extremely complex, and they are directly related to the most striking phenomena of our planet. One of the main features of ice is its ability to create *melting* Water which makes life on Earth possible.

Is it feasible to empty Water from a tank, for example a cup? At first sight, this question seems ridiculous. However, the Czech scientists A. Chapsi and B. Natale established that it is almost impossible to completely pour Water out of any container. They have done the following experiment. A Water – filled glass was rapidly turned over. As expected, within the first seconds all the Water poured out, yet it was just a deceptive appearance. The tube was kept invert for the period of three days after which, with the use of precise instruments, it was determined that a thin layer of Water had remained on the surface of the tube and its thickness amounted to 1000 Å. The size of one molecule of Water is equal to 3 Å, which meant that there were still 333 Water molecules present in the tube.

Why didn't those molecules detach from the tube?

What powers were keeping them there? It was discovered that in the thin layers adjacent to a solid surface melted Water properties are different compared to ordinary bulk Water.

Melted Water is characterized by an extremely high biological activity. In 1958-1961, in Tomsk, three scientists – Russia B.N. Rodimov, I.N. Toropcev and G.D. Berdeshev – prove this fact through a series of spectacular experiments conducted on the cells of animals, plants and humans. In the experiments on different kinds of cells of mice, chickens, pigs as well as wheat and vegetables, the results were highly positive. It was observed that, for example, the sexual activity of mice that were given melted Water rose significantly, the females bearing 20% more offspring than the mice drinking plain Water. The chickens which consumed such Water laid twice more eggs. The growth of wheat increased by 56% and that of cucumbers and radish by 250%. The results observed among the twenty-five patients of various ages who solely used *melted* Water for cooking and drinking exceeded all expectations. Their overall health and metabolism improved not to mention that their level of cholesterol decreased. *Melted Water* was prepared the following way. Fresh Siberian snow was collected and put into a tank. The snow was left melting till 25% of it was left. The leftover was thrown out expecting 25% of the deuterium to be in it. In reality, only 5% of deuterium remained there. Nevertheless, all of the *melted* Water used in the experiments showed highly positive effects on living organisms.

After 35 years of experience, that was initiated in Tomsk, these pioneers of Water continued in Kiev. The study involved mice infected with the strain of metastatic Lewis lung carcinoma. *Melted* Water with a level of deuterium decreased by 3% which was received from ordinary tap Water by applying our methods will be called "relic Water" from now on. Relic Water has a positive effect on the treatment of cancer, the structure of blood and mitochondrial respiration during ATP synthesis. Many years of experience in production, study and use of relic Water (RW) as well as Water from Unit "Krynychka" have shown solely beneficial effects on human health. Systematic and long-term (at least 6 months) consumption of RW leads to positive changes in elderly people's health such as improvement of sleep, mood, fixation of normal blood pressure and, in some cases, the restoration of previously lost or weakened bodily functions such as memory, creative performance, potency etc. The beneficial influence of *melted* Water on flora and fauna has been discussed in various books and articles. Exploring the Russian North, P.F. Shvetsov called *melted* Water "an active stimulant of life". Freshly *melted* Water used by O.A. Lastakovym had a positive impact on the health of Donetsk miners. Studies have shown the improvement of lung functions which were objectively manifested in the improvement of physiological functions. The merits of *melted* Water as for its impact on the health of living organisms can be presented in dozens of examples of works, experiments and books. But a hard question remains: Why is it that *melted* Water has such amazing properties?

In their book, V. Novikov and M. Saifutdinov discuss the characteristics of *melted* Water and come to an interesting hypothesis: "The riddle of *melted* Water lies in its subtle changes in the structure of the location and interactions of its molecules. Another resource says that "subtle changes in the structure" of Water may possess the energy of the hydrogen bonds of Water.

In the Kazan University's biochemical laboratory, U.Axmerov and A. Bilyukevich have found that in *melted* Water rotation direction of hydrogen proton changes producing pair-Water. As a result, the energy increases by 2 calories. Converting 1 g of ordinary ortho-Water into steam requires 537 calories and 1 g of pair-

melted Water requires 539 calories. However, the melted Water loses its energy with time, hence the freshly received *melted* Water differs from the somehow old one.

Molecular physics indicates that the protons of Water entering into any kind of connections, including those in the Water, spin on their own axis or in other words have their own spin. The composition of Water molecule consists of two protons of hydrogen and one oxygen nucleus enveloped by an electron cloud. These protons can spin in the same or different directions. The first variant is typical for pair-Water and the second for ortho-Water. In nature, the ratio between paired-Water and ortho-Water is 1/3 to 3/4. The reason behind this relationship so far has not been established by scientists. However, there is an assumption that at the time of melting, one of the hydrogen protons abruptly changes the direction of rotation, and thus the freshly-*melted* Water turns into paired-Water.

Analyzing the impact of *melted* Water on all living things we can undoubtedly assume that, even in very small concentrations, paired-Water is an active life stimulant. This has been partially witnessed in the studies of A.K. Gumanna: "Biological effect of *melted* Water was first observed by the people stationed at the North Pole where it was noticed that at spring, next to the ledges of glaciers, life was blossoming rapidly". After melting, most of the molecules of ordinary Water keep their ice-like structure, almost exactly like the Water connecting our body. It is very difficult to change its structure. Having melted, it maintains its structure for a long time. On the surface it is liquid, but in terms of structure it is still solid ice. This is the secret of the miraculous properties of *melted* Water. People have noticed that various micro-organisms and small algae developed on the edges of melting glaciers, although the conditions for their growth were extremely unfavorable.

In experiments with pullets have shown that those drinking *melted* Water, by the end of the 7th week, had 40% more weight than the others. It is also known that using *melted* spring Water for wheat production results in high productivity. *Melted* Water consumption increases the fertility of animals, the stability of red blood cells etc.

It is interesting to note that amongst the indigenous people of the northern villages and mountains who consume *melted* Water in great quantities, the number of centenarians is particularly high and at the same time diseases such as allergies or bronchial asthma almost never occur. The living organism has bound and untied Water.

Bound Water freezes at minus 18 – 20° C and its molecular mobility is approximately equal to that of ice molecules. Also, the dehydration energy practically equals the heat of melting ice. These molecules in many ways resemble the structure of the crystal lattice of ice. Water with ice-like structure is deeply rooted in the molecule system of living things. It holds molecules together, provides them with the best oxidation recovery process, optimizes metabolism and therefore makes the body function at its best.

Bound Water of body tissues serves as a catalyst in many biochemical reactions. It improves the accuracy and efficiency of the regulatory systems of the organism in addition to tissue resistance to adverse effects. It has been proven that the amount of bound Water in tissues increases with tissues increasing their resistance and decreases with tissue damage. Also, a body which unties Water crystallizing at 0° C has much fewer hydrogen bonds and significantly higher molecular mobility. While interacting with proteins, part of ordinary Water molecules regulate their structure to the ice-like tied Water. Some amount of structuralized Water is transferred from fresh biologically clean products into the body. There are factors and conditions, in and outside the human body, that destroy the ice-like Water structure. There, power depends on the ratio of bound and untied Water in the organism. It is proven that any damage done to the tissues of warm-blooded living things manifests itself with the level of bound Water being lowered.

A proper Water consumption schedule is very important for the body, especially to the elderly. The daily human need of Water oscillates between 2 to 4 liters a day, depending on people's work, the environment it is done in and the level of salts. Water is formed in the body by splitting and oxidating carbohydrates, fat



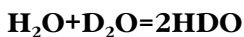


from meals, synthesis of proteins in cells and glycogen and other substances. This endogenous Water partially gets absorbed by blood, other is lost. Every 350 kJ produced by human body is accompanied by formation of 10ml of endogenous Water. Water, contained in drinks and food we consume, is absorbed by the stomach and intestines, enters the bloodstream and is distributed throughout the body tissues. A liquid medium is necessary for digestion and assimilation of food to occur in the gastrointestinal tract, the processes which are the part of the synthesis of the living body. Melted healing Water washes away the waste products of cell metabolism through kidneys by urine or through skin by sweat. Moreover, it plays an important mechanical role helping decrease the friction of surfaces (joints, ligaments, muscles etc.). Water is also instrumental in regulating our body temperature. Although Water itself has no nutritional value, potential dehydration can lead to the weakening of the body or death.

Melted Water plays a vital part in life processes, not only as a mandatory component of all cells and tissues of the body, but also as a medium by which all chemical transformations associated with the vital activity of an organism occur. Water is not only a solvent but also the environment where many substances keep their colloidal form required for the functioning of the body. Also, none of the metabolic processes take place without Water. A definite and constant amount of Water content in the living organism is a necessary condition of its existence. The body of a child, from birth to the age of one, consists of 80 – 85% Water. By the age of 18, the number drops to 65 – 75% (bone and fat tissues – 25 – 30%, muscle and internal organs – 70 – 80%, blood – 90%, saliva – 99.5%). With age, the cells' ability to hold in the required amount of Water is gradually decreased, as a result of which their shape and volume are changed. The Czech scientist Ruzicka has claimed that cell dehydration is the major cause of aging. *Melted* Water decreases the aging of cells and enhances longevity.

SOME METHODS OF OBTAINING HEALING *MELTED WATER (HMW)*

For a better understanding of the methods for obtaining *melted* Water, we must analyze the process of Water crystallization during freezing and melting processes. While freezing the part of Water that freezes first is the most clean one. That is why in frozen Water harmful and toxic substances, in general, will be in the last portion turning into ice. However, this pattern of segregation does not exhaust the whole process of cleaning and the improvements of biological parameters of *melted* Water. Let us recall the heavy isotopes of hydrogen and oxygen in Water, deuterium and tritium. It must be noted that deuterium in Water not only occurs in the form of D₂O but also HDO, because of the mixing of light (H₂O) and heavy Water (D₂O) there is an exchange of isotopes:



where $\Delta S^\circ_{298} = 2.8$.

Judging by the value of entropy, we can conclude that the major part of deuterium in Water is in the form of HDO with a potential of crystallization into ice being not at 3.8° C but at 1.9° C. Water has also a very heavy and radioactive particle, the molecule of tritium T₂O and HTO which freezes at the temperature of 9°C to 4.5°C. With the gradual freezing to a solid state, which happens in the medium of the transition temperature, almost all tritium and deuterium will be in a crystalline form. If the temperature goes below 1.9° C, the rest of the deuterium freezes. When the temperature reaches 0°C, the rest of the light Water (H¹₂O¹⁶) undergoes crystallization. Therefore, the first portions of frozen Water adjacent to the inner surface of the container will probably contain a high concentration of deuterium and tritium, but away from the crystallization there are fewer and fewer heavy isotopes. Thus, we know that the rest of the dissolved minerals, in contrast to the behavior of deuterium and tritium, act in a different way. In the first portion of ice almost none are present but the last crystallized parts will contain the majority. The melting of ice occurs at 0°C. At the temperature oscillating from 0°C

to +1.9°C all the heavy fractions of Water containing deuterium and tritium will be in the form of "fused" crystals seeking to "stick" to the pieces of melting ice in the central volume which contains the highest amount of various toxic substances. This way melting ice transforms into Water and decreases in volume. As it melts, the Water is enriched by deuterium and other heavy isotopes of Water. There is a moment when it is impractical to melt the ice any longer due to the fact that the majority of toxins melt back to Water. It was established that 10 – 15% of the original ice is to be disposed of because of its high condensate of heavy isotopes and contaminants. Back in 1977, the method of freezing Water in order to receive low leveled deuterium and tritium was already invented. It was used for drinking, cooking and for drink products. Healing *melted* Water (HMW) is heated no higher than 95°C as it has already been boiled. Boiling and cooling of the Water is necessary to remove toxic gases, to destroy an old structure of the Water and to create the conditions required to form the new structure. Freezing is carried out with the aim of separating impurities and heavy isotopes of Water as well as forming the structure of Water. This method makes the level of deuterium decrease by 3 – 5%.

The developed method of obtaining HMW is quite simple and helps us solve some of the wide range of problems concerning drinking Water, namely:

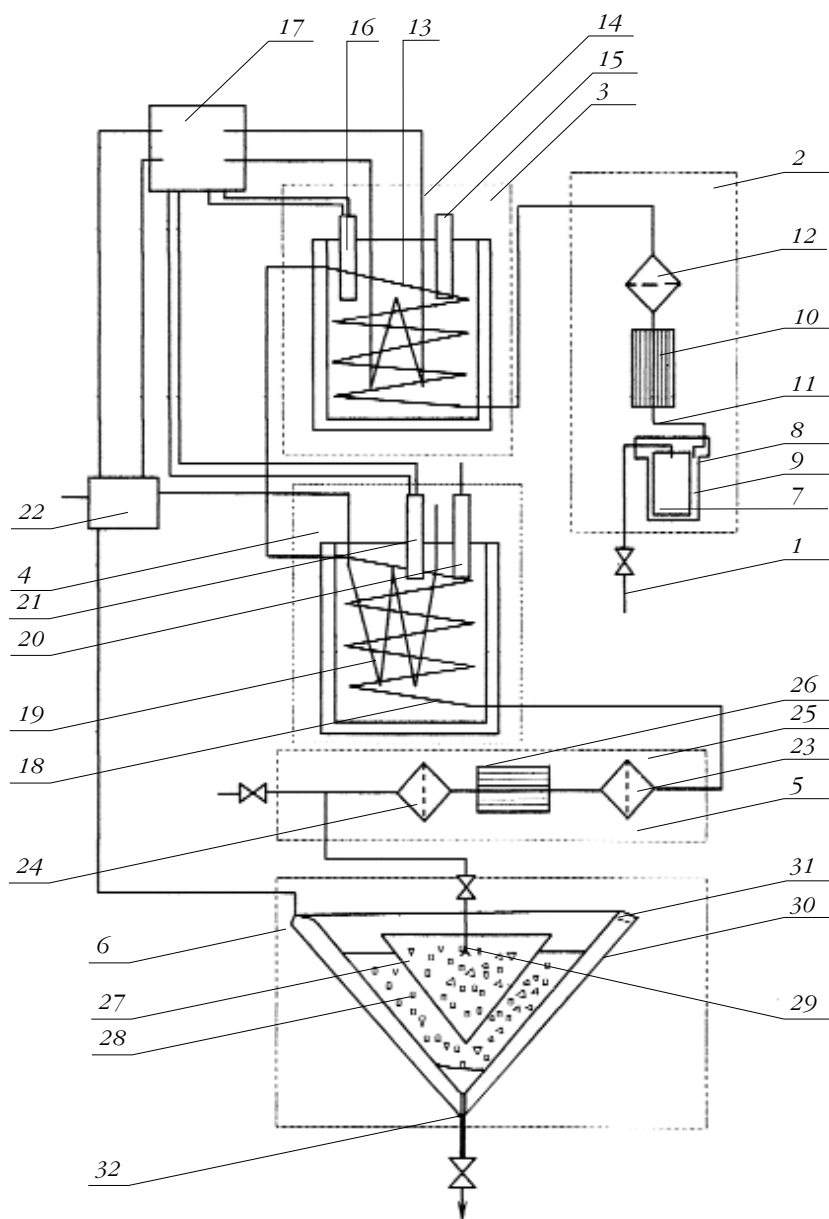
- Clean Water of harmful and toxic substances;
- Erase the previously "written" memory in the structure of the Water as for pathogenic factors;
- Reduce the content of deuterium and tritium;
- Produce Water with an ice-like ordered structure which is close to the structure of the bound Water in living organisms. We have already mentioned the exceptionally beneficial effect of HMW on the health of humans of all ages.

During numerous phone calls and personal meeting as well as in letters, people asked us to create a special system of producing Water with HMW properties so that such places as hospitals and children care centers could use it. Our team has responded to the requests and developed industrial production units series "Krynychka", "Cascade" and "Nadia" which produce Water with

HMW properties. The technology to receive *melted* Water and the units connected to it were developed by the head constructor Prof. Ivan Nikolaevich Varnavskiyand, and so they were called in his honor VIN. We are going to briefly describe these units (for more details we recommend I.V. Nikolaevich's monograph).

**Features of the design
of Unit VIN by which biological active Water is obtained.
Unit VIN2 "Krynychka".**

Unit VIN2 "Krynychka" is intended to provide purified biologically active healing Water. This unit (pic.1) contains 1 Water supply pipeline, block 2: complex Water cleansing, block 3: Water heating up to $95 \pm 2^{\circ}\text{C}$, block 4: rapid cooling of Water to $4 \pm 1^{\circ}\text{C}$, block 5: fine purification of Water and block 6: formation of structure and biological properties of Water. Block 2 of complex Water cleansing contains three units operating in a series: filter 7 of rough cleansing of Water including housing 8, copper grid 9 reinforced with Petryanov cloth, permanent magnets 10 on the site of Water conduit 11 from diamagnetic material and filter 12 of fine cleansing. Block 3 of Water heating to $95 \pm 2^{\circ}\text{C}$ is a container equipped in coil 13, made of stainless steel, through which the processed Water flows. Coil 13 is washed in "working" fluid in substances such as glycerol. The working fluid is heated by electro-heater 14. The heating of Water in coil 13 is carried out through the heating of the working liquid. Inside the top of coil 13, thermometer 13 and thermocouple 15 are put which are connected by the electro-regulator 17. ERA 17 maintains the temperature of Water in the upper coil in the range of $95 \pm 2^{\circ}\text{C}$. Block 4 of rapid cooling of Water to $4 \pm 1^{\circ}\text{C}$ contains a tank where coil 18 is set. The outer surface of coil 18 touches the container of working fluids responsible for cooling the Water in the coil.



Pic. 1

FRESH MELTED WATER (FMW) AND ITS USAGE IN MEDICINE

We shall describe the methodology and effectiveness of medical usage of fresh *melted* Water of doctors and biologists of Donetsk, Ukraine led by Professor O.A. Lastkov. Long-term studies in Donetsk Medical Institute and Institute of Hygiene showed that FMW has beneficial impact on the body on body resistance. According to Professor O.A. Lastkov, In order to enable Water to exert its effect, the following rules must be followed. FMW is made from ordinary tap Water which is poured into a clean, flat and tightly closing container of glass or plastic up to 85% of its volume and left at -4°C degree until complete crystallization takes place. This temperature can be obtained even in a household freezer. The container must not be completely filled in since in the process of freezing Water volume increases which may cause the Water tank to crack. The duration of the freezing process depends on the shape of a vessel, the salts concentration in the freezing Water and the intensity of the freezing unit. It is best to use vessels from clay and porcelain to create FMW.

Defrosting is carried out at the room temperature in the same container as it has frozen in. Freshly *melted* Water cannot be heated or had anything added to it. It is not advisable to freeze Water in metal containers because it loses a significant amount of its biological active potential. Do not freeze Water in open containers as it poses a risk of foreign substances destroying the structure of molecules. For the same reason you should not cook Water from ice and snow which tends to be contaminated.

For medical purposes, FMW is to be drunk 30 minutes before eating, 4 – 5 times a day for the period of time of 30 – 40 days. Within one day, an amount of 1% of the body weight of Water must be consumed. For example, if your body weight is 50 kg, the daily need would amount to 500 grams of freshly *melted* Water. Then, gradually reduce the dose to half of the indicated. For prophylactic use, half of the indicated dose should be applied.

During preliminary experiments, it was determined that heating FMW to more than $+37^{\circ}\text{C}$ or distillation of any drugs in it leads to a

rapid loss of FMW's healing properties. This corresponds with the data from other researches which show that these factors disrupt the hydrogen bonds in Water. Storage of FMW in + 22° C resulted in a gradual decrease of its biological activity, namely 50% every 16 – 18 hours. 6 groups of experiments and observation included a comparative study of the influence of FMW on the state of colloidal systems, survival ability, thermal and hypoxic stability of the laboratory animals.

On the basis of large number of experiments on the speed and efficiency of coagulation of aluminum sulphate, it was shown that FMW significantly inhibits the rate of coagulation increasing the stability of colloids. The latter is due to the fact that FMW creates a special structural-mechanic barrier around the colloidal particles which prevents aggregation of particles. Also, while investigating the thermal denaturation of serum proteins, it was discovered that the temperature of denaturation of the serum solution in FMW was $3.7 \pm 0.008^{\circ}\text{C}$ higher than the control samples. Those experiments were complemented by studying the intensity of the swelling of gelatin for 20 minutes in FMW. It was found that this process takes places 23 – 27% faster in FMW then in tap Water (TW).

These studies suggest that FMW has more means of high-molecular compound connections than TW. Moreover, the alteration of inorganic colloids and proteins happens which stabilizes its molecular structure and increases its stability.

Special experiments studied the survival ability of two groups of outbred white mice. The experiments were conducted for the duration of 6month in the warm period of the year under normal conditions of feeding and observing. The average weight of the animals where the same.

However, drinking Water given to the control group and the experimental group was different. The control group drank TW and the other FMW. The results showed that in the control group 53.7% survived and in the experimental group 92.5%. In the control group, the majority of the mice which died were with a high or low weight average. This was not observed in the experimental group.

The experiment clearly demonstrate that, on the assumption that other conditions remain the same, drinking FMW increases the

immunity of mice, thus contributes to the prolongation of animals' life. There have been a number of experiments dedicated to the resistance to the thermal impact on white mice.

In the thermal impact experiment, all the living conditions that the rats were provided with were the same except for the drinking Water they were given; The experimental group received FMW, the control group TW. Both groups were placed in heat chambers at the same time. This experiment determined the life span of rats put in a heat chamber where, for 40 minutes, the temperature was set to 40C°.

The studies showed that drinking FMW increases the ability to withstand thermal impacts by 60 – 80% and allows for 3 – 4 times faster recovery of the normal body temperature of animals. In addition, it has been noted that drinking FMW increases phagocytic activity, neutrophils and lysozyme. Similar results were obtained in experiments on mice. Taking into account that the two groups were given identical conditions, FMW consumption is the only factor that can explain the rise observed in the experimental group's adaptive statistics. Furthermore, it was examined how FMW influenced the development and the course of hypoxia. Both groups were put in sealed containers of increasing carbon dioxide concentration, and it turned out that the group of rats consuming FMW lived for 36 ± 0.5 minutes and the control group lived for 29 ± 0.8 minutes.

Diving chamber experiments have shown that the use of FMW allows to increase the climb by 1000 m and increases the length of survival at the "height" of 12 km by 50%. This data suggests that the introduction of FMW to the organism of experimental animals greatly improves their resistance to the lack of oxygen and hypoxia. It should be pointed out that the long-term drinking of FMW is accompanied by the increased concentration of proteins in the heart and other organs. According to F.Z. Meerso, A.A. Pokrovsky and others, this biochemical shift suggests the possibility of developing an adaptive reaction of the organism. The adaptive reaction effect of FMW can be traced to other autonomous systems of the body. It was also determined that the application of FMW to the mucous membrane approximately speeds by 2-fold the work of

the ciliated epithelium – the basic unit cleaning the respiratory tract.

As it is demonstrated in the experiments, FMW – mainly due to its stimulation of the ciliated epithelium – inhibits the development of pneumoconiosis and related lesions of the nasopharynx, trachea and bronchi.

Research on antiallergic effects of FMW was carried out on rats and guinea pigs and it was confirmed that daily injections of FMW in the amount of 0.7 – 1.0% of the body weight help the period of sensitization of alien protein which approximately reduces the severity of manifestations of anaphylaxis by twofold. A similar effect of FMW was observed in the studies of anaphylaxis in isolated segments of ileum. Under the influence of FWM, the peritoneal exudate actively sensitizes to foreign proteins of the animals and significantly decreases the anaphylactic degranulation of mast cells. Among the animals treated with FMW the level of histamine content decreased significantly, and the activity of histaminase rose in the liver and intestine. These data were determined by the changes in the nature of interactions between proteins, receptors and hormones under the influence of FMW.

The results of the studies provided some facts as for the mechanism of FMW and optimal conditions of its use. In accordance with R.M. Baevsky's data, FMW captures the energy and information related to antibodies and enzyme levels of the structure of a living organism.

The data of the main experimental studies presented were subjected to control tests conducted by the scientific and research institutions of the USSR, approved by the Academic Council of the USSR Ministry of Health and the specialized Council of State Committee for Science and Technology under the USSR Council of Ministers (1980). It was adjudicated that FMW can be used by inhalation or in drinking form.

For every thousand workers, systematic use of FMW throughout a year in 4 Donetsk mines allowed to reduce the loss of working hours, caused by respiratory diseases, nasopharyngitis, bronchitis and pneumonia, by 30 – 40 days per year. In the process of researching multiple questionnaires, L.O. Rorganov determined

that prophylactic inhalation of FMW led to significant improvements in external respiration, functionality of the mucous membrane of the nasopharynx during compensated hypertrophy and subatrophic injuries as well as the rise of general health indicators of the miners. Signs of "fatigue" of the ciliated epithelium or adverse effects of FMW successive to the systematic inhalation have not been found.

Electro-moisterizer "Comfort" was used for inhalation. This device was placed in the dressing room of the miners, so that they would inhale FMW right after taking a shower. Such arrangement was very convenient for the miners since they were not time robbed of time by using separate inhalation cabins.

Further studies showed other positive effects of FMW on human health, namely it accelerating the respiratory processes, increasing the activity of lysozyme, reducing the degree of sensitization of the mucosa and normalizing the functions of the bronchial muscles etc.

The way FMW was introduced to the respiratory airways was more physiological than in other inhalants. Relatively high dispersion and stability of FMW aerosol generated by the electro-moisterizing device on the height of 1.0 to 1.7 m from the floor (which corresponds to the height of a seated or standing man), provides its penetration to the alveoli and is sufficiently delayed to make contact with the surface of the mucous membrane of the respiratory tract. Under normal conditions a 20- minute stay in the dressing room which FMW is sprayed in though the electro-moisterizer provides an acceleration in work of the ciliated epithelium within 3 – 7 hours.

During the inhalation, the amount of dust and unoxidized substances in the air of the dressing room was reduced by several times which meant the improvement of the air quality. Thus, the prophylactic use of inhaled FMW provided a significant rise in health and allowed to maintain a higher level of health of the miners, which, if applied in the future, may result in an economical boost.

Currently, due to extensive organizational works carried out by the Donetsk Regional Department of Health in cooperation

with the Ministry of Coal Industry of Ukraine (seminars, conferences, etc.), prophylactic inhalation of FMW is used in 7 mines and other industrial enterprises. The use of FMW inhalation is summarized in a methodical recommendation of the USSR Ministry of Health, "The use of freshly *melted* Water for the prevention and treatment of non-specific nasal disease is recommended" (1978). Inhalation of FMW has also been applied in treatments of certain diseases of the respiratory system. Laryngologists, therapists and other experts have begun to use FMW widely in combination with other agents.

In the 1st children department of the Donetsk City Hospital Professor, G.D. Dorofeev and his colleagues use inhalation of FMW in the treatment of pneumonia in the recovery period. Compared to the children who receive inhalation of ordinary Water, those patients who received inhalation of FMW stopped coughing 2 – 7 days earlier and their blood, temperature and respiratory parameters normalized at the same time. In other words it helps the acceleration of recovery. Another issue of worth mentioning is the fact that FMW significantly reduces the frequency of complications and transitions to chronic forms of diseases. FMW Inhalation has been effective in treatment of bronchitis with asthmatic component. Similar data has been registered in the treatments of adults in the hospital of Kramatorsk and in other cities of the region.

Inhalation of FMW has been successfully used in treatment of otolaryngological diseases, surgery and in emergency medicine. In order to evaluate the adaptogenic effect of FMW, two hundred comparative studies have been conducted on students not adapted to heat and on steel plant workers.

The observations on healthy students, aged 20 – 24, were conducted in spring. They were subjected to heat for at least 4 hours every day during the term of the experiments. Each subject drank 700 – 800 ml of Water which was about 1% of their body weight. In the first stage, they were given boiled tap Water (control). In the second, 10 days after the first stage, they were given FMW. The subjects stayed in a heat chamber (air temperature $40 \pm 0.5^{\circ}\text{C}$, humidity – $60 \pm 3\%$, air flow less than 0.1m/s) from 13 to 50 min-

utes lifting weights of 10 kg to a height of 1m 15 times in one minute. In the 20th and 40th minute they were offered to rest in the heat chamber. In summer, observations were made on 112 healthy workers of various shops with the same pace of work. The air temperature in the workplaces was $42 \pm 0.2^{\circ}\text{C}$, with the humidity level of about 50%, 5m/sec air flow and the intensity of radiant heat at individual workplaces reached to $0.044 \text{ J/cm}^2/\text{min}$. In the lounge area the air temperature was $26 \pm 1^{\circ}\text{C}$.

During work and at home they followed the same ordinary diet. Only Water given to drink was different. During the first stage, the subjects drank ordinary tap Water carbonated with carbon dioxide (control group). There was no restriction on the amount of Water they drank. All of the subjects among students and workers in the control groups felt fatigue and tiredness after staying at work or in the heat chambers. During the second, initiated after 12 days, they drank FMW.

The nature of physiological changes in the control groups matched fully the data collected through the previous studies. The experimental group experienced the following. They did not complain about fatigue. It was observed that, after work, less stress effected the cardiovascular system, the consumption of Water drunk in one shift was much smaller than in the control group.

Excretion of sodium, potassium and calcium was much lower in the experimental group than in the control one. Also, energy consumption was significantly lower and rest time was much shorter in the group drinking FMW. Given that the intensity of work and the temperature in the heat chamber and in the workplaces during the control and experimental observations were virtually identical, we may assume that the differences detected are due to the reactions of the organisms to the consumption of FMW. Our findings indicate the feasibility of drinking FMW to maintain optimal flow of all vital processes under the conditions of of overheating and high physical activity.

The application of FMW significantly improves general conditions of patients. The inclusion of FMW in therapy of diathesis of different etiology has a beneficial effect in at least 80%. The usage of FMW in conventional therapy of skin diseases of allergic kind

(chronic eczema, psoriasis, exudative psoriasis, atopic dermatitis, erythroderma) leads to a significant decrease within 3-5 days and in some cases stops the itching, reduces edema, normalizes sleep of patients, and the disease enters the regressing stage much faster (Prof. M.N. Buharovich).

In a surgical clinic (Prof. L.D. Taranenko), the systematic usage of FMW resulted in rapid normalization of basic functions of the intestines in the patients who underwent an operation of the gastrointestinal tract. A positive effect was detected in patients suffering from drug allergies, which is vital for those who are to be operated. Patients drinking FMW in the postoperative period experienced fewer complications. According to Assoc. Prof. E.K. Yevtushenko, it is necessary to include FMW in complex therapies of neurological diseases as it has a positive impact on the course of these diseases and increases patients' resistance. Application of FMW heightens the effectiveness of treatment and reduces the length of stay in a hospital. No adverse effects or complications related to drinking FMW have been found. It was noticed by clinicians that even in severe cases which are difficult to treat drinking FMW managed to significantly improve patients' condition.

It is due to the fact that no foreign substance enters the body with FMW, while with further medication some hidden or severe allergies can occur worsening patients' condition. **Melted Water increases the resistance of the human organism.** FMW builds up the immune system of the human body.

Freshly *melted* Water affects the energy, information, antibody, enzyme levels of the living organism. It can be used both as a drink and for inhalation. Inhalation of freshly *melted* Water significantly reduces the of respiratory diseases, nasopharyngitis, bronchitis and pneumonia. This procedure improves external respiration and normalizes the function of the nasal mucosa and larynx during hypertrophic and atrophic injuries. Fresh *melted* Water contributes to the acceleration of the recovery processes, increases the resistance to infection, reduces the sensitivity of the mucosa and normalizes the functions of the bronchial muscles. To summarize, FMW has a positive impact on the course of these diseases and increases the resistance of the patient's organism.

OBTAINING LIVING *MELETED* WATER AT HOME

Before moving on to the system developed to obtain Water with a low content of deuterium and tritium, we must discuss simple methods of producing living *melted* Water (LMW). We must bring to your attention that not all *melted* Water has beneficial effect on the health of the animal and plant world. *Meltd* Water with a high level of deuterium and tritium as well as with a high content of dissolved harmful and toxic substances must be considered "dead" rather than "living" Water. We have already mentioned "dead" Water but now let us focus on real healing living *meltd* Water and the ways of obtaining it. Living Water is a miracle. It treats almost all diseases, rejuvenates the body and prolongs life. However, it should be remembered that its beneficial impact will be felt only through a systematic use. The LMW is received the following way:

- Water is boiled in a glass or enamel container for 1–2 minutes;
- The obtained liquid is rapidly cooled in a closed tank to 20°C or lower;
 - Water is poured into glasses with broadened tops;
 - Water is frozen, for example in a freezer;
 - After complete freezing of Water, the cups are taken out of the freezer and placed in a container (a pot) and the ice inside is left to melt. Then, the ice is taken out and washed with hot Water from the tap which helps get rid of heavy Water (deuterium and tritium) as it freezes to the edge of the container the Water froze in. Then, the ice is put back to its cup and is left to melt in room temperature;
 - The melting is continued up to a point when the ice, more or less of a size of an egg, is floating in the Water. This ice contains the majority of the toxic substances and hazardous components in Water so it must be disposed of. Repeating the freezing and melting procedure helps lower the level of deuterium and tritium by 10 – 12% and 20 – 25%;
 - Living *meltd* Water must be stored preferably in a refrigerator. The obtained Water can be used for drinking as well as preparation of food and beverages (tea, coffee). Living *meltd* Water should

not be heated more than up to 95° C because of its beneficial structure.

- The above described method of obtaining LMW should be regarded as the simplest version so far existing methods of obtaining it. The essence of the process lies in the knowledge of the melting and freezing properties of Water and its toxic substances.

WATER WITH A LOW CONTENT OF DEUTERIUM AND TRITIUM IN NATURE

There are numerous natural phenomena around us which have not yet found any explanation. For example we are trying to explain whether living organisms are indifferent to the deuterium concentration in their environment.

The study of fossils bring to evidence that in the prehistoric era some of the living organisms grew to a great size. A similar situation occurred in the Mesozoic era where animals also reached enormous sizes. The comparison of the sizes of herbivores in different eras, such as the brontosaurus and the cow clearly is not in favor of the latter. Food for all the hungry giants was more than enough, the land was covered with lush vegetation and ponds swarmed with wildlife. What was the secret? What happened to our nature? It is hardly possible to explain it by the warm climate of the old times, because then, just as now, in warmer regions of the Earth temperature ranged from 20 – 30° C. Still, the largest animals in the history of the Earth are whales which live closer to ice and glaciers rather than the equator, which means the secret is not hidden in the temperature. So what caused the changes to the world? Perhaps, it is worth considering potential effect of the increasing content of deuterium in. Why did the life in the ocean crawl out to land? 3/4 of the surface of our planet is composed of Water and only 1/4 of it is land. Nevertheless, life has reached the highest development on land.

In our opinion, this can be explained with the fact that on the continents the Water of rivers, swamps and lakes (which is only 0.45% of the Water of the planet) has less deuterium in comparison to ocean Water.

Birds migrate to the north to lay their eggs where there is less food than in the south and sometimes the conditions even in summer are very difficult, for example on the islands of the Arctic Ocean, but the Water contains fewer heavy isotopes of hydrogen. This is a hypothesis but the idea can be put together with many main stream assumptions.

As it was mentioned before, gigantic whales live far away from the equator and close to the melting ice. In the arctic Waters, the amount of plankton is much higher so the amount of food for whales is greater than in other parts of the ocean. Interestingly, even in the coastal Atlantic shallow Water of Saharan Africa there is much less life than in the cold Barents Sea.

An attempt to explain this phenomenon by pointing to cold as a factor seems misguided since it is commonly known that life processes are usually more intense in warm environments. However, it is quite another matter if we consider the low temperature of Water with its ice-like structure. We would also like to remark upon an interesting fact related to pygmy and dwarf animals, namely that they are found mainly in the western equatorial Africa which is effected by high deuterium ocean breezes. Simultaneously, the largest African animals such as elephants or hippos live in the eastern part of the continent where rains containing deuterium are below the average.

The most long-living trees grow on the eastern slopes of Cordillera and the most luxuriant vegetation are found on the eastern slopes of the Andes. Please recall the natural mechanisms of segregation of isotopes described previously.

Watering of plants by heated snow Water (with addition of salts) will make them grow luxuriantly but if we begin to pour the remains of boiled Water, the plants will slowly die because of the heavy isotopes. Again, we would like to mention longevity. The longer life span of northerners can be explained by the quality of Water they drink. The same can be said about people living in the mountains such as the Abkhazians and the Bulgarians.

In the extreme cold of northern Russia lies Verkhoyansk, conditions of which would seem as harsh as it can be for human beings, yet it is the center of longevity of Yakutia. This can be explained with

the "deuterium" method the following way. The moisture of heavy snow enters Verkhoyansk which is cleaned of deuterium by freezing and melting repeatedly which we know is one of the most effective methods of disposing of heavy isotopes of hydrogen from Water. The ancient centers of civilization (Central Asia, India, China, the Incan Empire etc.) all used and drank melted Water from glaciers which was pure and clean.

This idea is difficult to undermine. In addition to the examples given by us, there are other numerous reactions of the living world with the isotopic composition of Water. If you wish to deny these concepts, you can find several others to replace them with. Nonetheless, when viewing all of these factors together, there is no other plausible explanation for them except the "deuterium" theory.

INSTALLATION OF UNIT "NADIA" SHEDS LIGHT ON HEALING WATER

It has been known for a long time that there are dozens of areas on our planet where people live longer than the majority by 20 – 30 years. Generally, this phenomenon is associated with abnormal geomagnetic manifestations in these regions, genetic characteristics of the population, their way of life, work and food. However, in recent years scientists have started to consider the strong influence of drinking Water. Studying the health problems of aging, Prof. G.D. Berdyeshev brings to our attention the inextricable link of aging and its entire complex genetic interaction with Water. According to him, the world of biological and medical science has not realized the importance of the structure, entropy and physicochemical properties of Water which hold a revolutionary significance as for the problems of health and human longevity. This theory was proven through the famous experiments conducted in the laboratories of the Medical Institute of Tomsk in 1959 – 1960 during which it was observed how melted ice and snow Water with a lowered content of deuterium effect living things.

In the clinic of MIT, 25 patients with disorders of cardiovascular activity and metabolic system were given drinking Water with a 25%

lower level of deuterium for three months. As a result of the treatment, a significant decrease of blood cholesterol and the improvement of the metabolic system functionality were noted in all patients. All of the patients felt much better and such a significant progress was visible as quickly as after 3 months. The results speak for themselves. The scientists working on this project realized that this was a great discovery. Unfortunately, this accomplishment, which gives us hope to increase agricultural productivity and promote human health, has yet not found even local application not to mention the use of it in medicine and biology. The reason for that is the deficiency of ice and snow of the Mesozoic era as well as the high cost of its delivery from Antarctica and Yakutia to the consumers.

The question arises, "How is it possible to create Water with a 25% reduced level of deuterium from ordinary toxic Water?" We worked very hard to answer this question. It took several years of research to turn this dream into reality.

First of all, it was necessary to thoroughly examine the properties of deuterium, especially its connection with oxygen. G.D. Berdyshev, I.N. Varnavskiy and their staff have conducted a series of experiments, and they came to the conclusion that since deuterium is present in Water mainly in the form of HDO, its transition into a solid state will not occur at 3.6°C but at 1.9° C and HTO not at 9°C but 4.5°C.

Therefore, for the transfer of these compounds to a solid state, the temperature of 0°C – 1.8°C is required. In this temperature range all the heavy isotopes of Water (HDO + HTO) will be in a solid state, in which it is reasonable to extract the drinking Water, leaving the heavy and harmful compounds behind.

In order to do this, we must create a discharge on the surface of Water at the temperature of 0 – 1.8°C, which will result in the evaporation of light Water molecules H_2O as Water in a liquid state requires much less energy to evaporate. Of course, the first portions of cold steam will contain an increased amount of gas dissolved in the received Water. The cold vapor of living Water is to be stored and condensed. In this way, by joining together the theory and new sequences of obtaining living Water, we create a brand new, previously unknown, process.

That is how Unit "Nadia" was born, a unit whose aim is to obtain living and healing Water with a lowered content of deuterium and tritium.

First of all, we should mention that there are many ways to get melted Water which has a reduced level of deuterium and tritium. The vast majority of methods reduce the heavy isotopes only to 2%. With simple freezing and thawing of Water, of course, the heavy isotopes still remain in it. The method of freezing Water and throwing out the last piece of the ice in the process of melting to get rid of the heavy isotopes is inefficient. In contrast to the above approach, Unit VIN4 "Nadia" freezes the cold vapor extracted from the source Water, which is followed by melting of the received ice under infrared and ultraviolet radiation, and infuses it with beneficial minerals.

We have established that at the temperatures oscillating between 0 – 1.8°C, Water with deuterium and tritium, in contrast with light Water, occurs in a solid state. This can be used for separating heavy and light Water by creating a discharge above the surface of Water. At this temperature, light Water will evaporate rapidly and it will be pumped into a freezer which then will turn it into snow or ice. Heavy Water, being in an inactive solid state and having a much smaller partial pressure, will remain in the container with the remaining Water containing dissolved salts of heavy metals, petroleum products, detergents and other harmful toxic substances.

The data obtained by laboratory experiments shows that the temperature of Water before it is evaporated has significant effect on the level of deuterium and tritium found in the cold vapor. If, at the time of evaporation, Water's temperature reaches 0 – 1.9°C, the level of deuterium is reduced by 35 – 45%; and if it reaches 10°C, only 10 – 12%. At 20°C and above, almost no deuterium is left in the vessel and turns to vapor with the rest of the Water. Biological activity of the melted Water can be significantly improved with ultra-violet rays.

In the discussed method, the melting of Water is done by ultraviolet and infrared radiation. This process imitates the solar radiation received by Water on mountain tops by which it gains favorable structure.

Unit VIN4, aimed at receiving healing *melted* Water with a lowered deuterium and tritium, has found its fundamental technological

and constructive continuation in a prototype Unit VIN6. Having noticed the need to expand the usage of FMW with a lowered deuterium and tritium level, the team of G.D. Berdeshev and I.N. Vanravskiy developed a new small-sized Unit VIN7 "Nadia" which differs from VIN4 and VIN6 thanks to its new technological solutions.

Now we shall describe the basic principles of the new Unit VIN 7 "Nadia" and its use.

Our task was to find a way to get healthy drinking Water with a low content of deuterium and tritium which would differ from the methods implemented in Units VIN4 and VIN6. Firstly, great productivity must be achieved. Secondly, we must lower the cost of such a machine. Thirdly, the most advanced technologies must be included in it.

The discharge in the inside of the vessels containing Water in VIN4 and VIN6 could not create conditions for receiving cold vapor in such an efficient form that would ease the process of flowing it to the freezing machine. Therefore, in order to obtain saturated and supersaturated cold vapor, it is first subjected to heating in an environment with potential centers of condensation, for example minerals, then it is rapidly cooled from $+100^{\circ}\text{C}$ to -20°C and condensed in Water or ice.

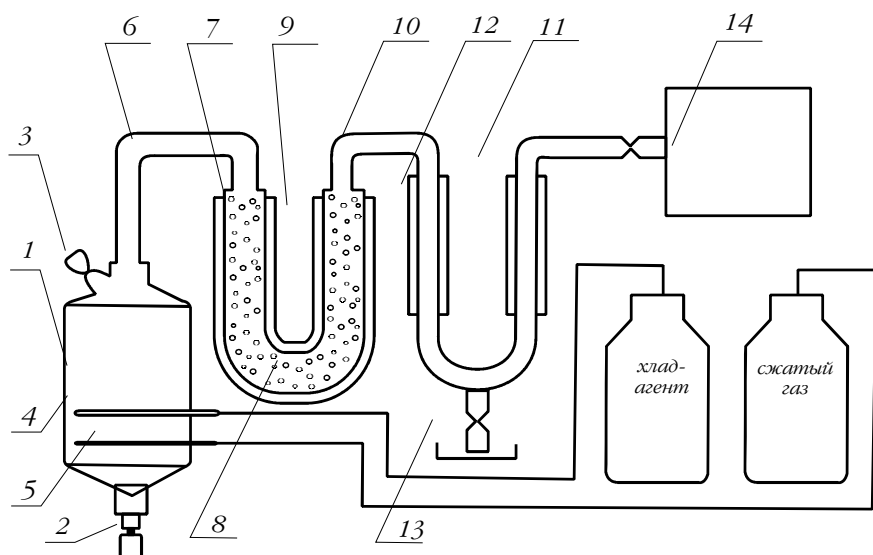
As experiments have shown, this concept was right. The amount of vaporization flowing to the condensate was 20 – 30% higher than in VIN4. In the vessel, where the Water is vaporized from special natural minerals are added which evaporate with the Water. Even though the number of minerals transform into gas shape is very small, it still greatly helps the structuralization of Water. This can be explained easily: the submicroscopic minerals which have changed into vapor in the cooling process become the centers of the condensed Water structure.

The new design of Unit VIN7 "Nadia" enables us to successfully implement the above method of obtaining healing drinking Water with a low content of deuterium and tritium .

Using Figure 2 we can learn the structure of this machine. This unit includes tank 1 to evaporate Water in which a sealed vessel with pipe 2 pipe 3 and a cooler are present. In tank 1 bubbler 5 is placed. Via pipeline 6, tank 1 connects vessel 7 in the shape of

U which is filled with specially selected natural minerals 8 and is equipped with heater 9. Vessel 7 for heating the vapor is connected via pipe 10 to tank 11 which condenses steam. Tank 11 includes cooler 12 and a tube with a valve 13. The tanks 1,7 and 11 are inner-closed by rear pump 14. All these tanks are equipped and furnished with the means to measure and control the temperature of Water, cold and hot vapor and the condensation of ice and Water, in addition to monitoring and adjusting the discharge.

Unit VIN7"Nadia"



Pic. 2

The device operates the following way. Through tube 2 and 3, tank 1 is filled with Water. After that, by the usage of cooler 4 and bubbler 5, the Water temperature is set to 0 – 10°C. The compressed gas and the intensity of discharge must be balanced in such a way as to always maintain the systems pressure, providing a low boiling point of Water in tank 1. The resulting cold vapor is continuously

pumped into vessel 7 where it is heated amongst minerals 8. From vessel 7, by the means of pump 14, the hot steam flows through pipe 10 to tank 11, which condenses Water into ice and snow. The unit can be equipped with several cooling tanks of different temperatures to raise the efficiency. The melting of ice occurs in the same manner as it was described for Unit VIN4 and VIN6, but in VIN7 the pressure in the tank is pre-equilibrated with the atmospheric pressure. The resulting melted Water with healing and lowered level properties flows out through pipe 13 and is ready for use.

WATER AND ITS OXIDANT RECOVERY POTENTIAL (ORP)

The oxidant recovery potential of Water is indicated by the number of electrons that can neutralize any free radicals****(I Have no idea what this means.)***. If Water is not able to give electrons, it has a high ORP value. For example, the chlorinated tap Water in Kiev has ORP of 300 – 400. A great amount of electrons in the liquid will mean a reduction in the ORP value.

Instruments for measuring the number of electrons contained in food and Water have been used for over 100 years now. First of these measuring devices were created in France by Professor Claude Vincent in the 1850s. The oxidant recovery potential is measured by the numbers of electrons and the energy potential of the liquid. The scale of measurement uses millivolts (mV). The scale extends from -800 mV which corresponds to the highest concentration of energy (reduced state) to +1200 mV which is the lowest concentration of energy (oxidized state). The natural state of Water is 0 mV. The value of 500 mV indicates the presence of a larger number of electrons than in 200 mV. The electrometer measures pH and ORP. The pH value characterizes the energy of hydrogen and its level of activity in liquids. The scale of measurements range from 0 pH (acidic) to 14 (alkaline) pH, and pH 7 indicates the natural level. The most dangerous bacteria and viruses thrive in acidic environments so it is important for an organism to consume alkaline-like food. The American scientists Patrick and Gail Flanagan,

while studying Water drunk by the long-living inhabitants of Hunza mountain region in Pakistan, discovered that the hydrogen and its molecules have two electrons. One electron is easily released by turning Water into a liquid antioxidant which neutralizes free radicals- the primary cause of disease and aging. The Flanagans developed a special silica powder containing microhydrin which gives away free electrons to the liquid. As a food supplement added to Water, drinks or food, microhydrin gives extremely beneficial effects. For example, if tea has and ORP of +220 then after adding a pinch of microhydrin its ORP turns into – 225. Similarly, milk turns from +150 to – 398 ORP. This means that adding microhydrin to tea or milk enriches the amount of electrons of the substance by 100 billion times. In other words, its antioxidant activity rises drastically, on a par with its positive impact on the body. Microhydrin is a colloidal silicate of a size of a few nano-meters which is charged by negative ions of hydrogen.

There are three known isotopes of hydrogen. Deuterium contains one proton, one neutron and one electron. It is a stable and strong hydrogen bond. Tritium, the radioactive isotope of hydrogen, has one proton, one electron and two neutrons. There is 150 g of heavy Water D_2O in one ton of Water. The oxygen of Water has 5 isotopes: O^{17} and O^{18} (two stable and radioactive isotopes), O^{14} , O^{15} and O^{19} . Stable isotopes of oxygen are present in all natural Water sources. Their ratio is the following. For every 10,000 parts of O^{16} there are 4 parts of O^{17} and 20 pieces of O^{18} . In terms of physico-chemical properties, heavy oxygen Water does not differ greatly from ordinary Water.

Given the diversity of the isotopic composition of hydrogen and oxygen there are few hundred known combination of isotopes in natural Water. 99,73% of it consists of ordinary Water $H^1_2O^{16}$ and the rest is heavy-oxidized Water $H^1_2O^{17}$ (0.04%) and $H^1_2O^{18}$ (0.20%). There is also 0.03 % of H^1DO^{16} and D_2O^{16} in Water containing the heavy isotopes.

Record of information in Water can be carried not only by associates and fractals of Water molecules but also by the isotopic species. The third way to carry information is through the variation of ortho- and pair-Water.

This mechanism is a manifestation of molecular dis-symmetry in the organic world. In 1861, Pateur discovered the lack of parity between the right and left molecules of organic substances of natural origin. This was studied in detail by Vant-Hoff and his successors. All amino acids, sugars, fatty acids in the body of plant and animals are rotating to their left. This factor is important in Water in determining ortho- and pair-Water. Consequently, another way for the information to be carried through Water is its structural dis-symmetry.

Currently, biologists consider Water not only as a medium in which biochemical reactions occur and as a transport path, but also as an independent biologically active substance which has the memory of the properties of the universal system for regulating all of the vital processes.

WATER AND MINERALS

In subsequent research and development of the new processes of obtaining healing Water proved that Water should contain specially selected minerals. The analysis of the human organism shows that the compositions of the micro-elements in it and sea Water are not so dissimilar. The only difference is the concentration of substances.

According to the studies, it was determined that the beneficial effects of micro-elements and minerals lie not only in their chemical composition. On the border between the solid body and Water there is a so-called hydration force. This force is related to the quantum mechanical interaction of nuclei, electron shells of atoms, ions and molecules.

As a result of hydration force on a solid surface, such as a mineral, a very thin film of Water is formed which consists of several layers of H₂O molecules. This membrane is non-uniform in its thickness, with a high crystalline order directly on the border with Water and a mineral. The force of hydration which holds Water molecules on the surface of the mineral is significantly superior to the bonds of hydrogen. Therefore, the mobility of these molecules is reduced and

its structure resembles that of ice. These structures, however, are distinct from each other as in ice, the total dipole moment of H_2O is equal to zero, and the membrane created on the surface of the mineral has a certain electric charge. The physics of this phenomenon can be summarized in the following manner. Within any solid body, including minerals, there is a great amount of intermolecular and inter-atomic bonds which firmly hold on to each other by a crystalline or amorphous way. On the surface of a mineral, these bonds form uncompensated electrostatic fields which act on a very small distance of a few angstroms. Water molecules, when in direct contact with a solid surface, undergo a substantial transformation. Their hydrogen bonds break, and the molecules with the opposite charge are attracted and held firmly on the solid surface, losing almost all their mobility. To the first attached layer of immobile H_2O the second layer is attracted which creates stronger hydrogen bonds than in the original substance, thus restricting its movement but not as strongly as in the first row. The hydrogen bonds between the third and second layer are stronger than in the original liquid but weaker than those of the second and first membranes and so on.

A similar pattern can be observed in the interaction of a permanent magnet with iron filings. Here is an example. Let us imagine a large surface of wooden table were we scattered iron filings. Above the center of the table we hold a magnet. The filings immediately are attracted to the poles of the magnet. Those particles of filings that have not found place on the surface of the magnet start attaching to the first and second rows. The further from the poles of the magnet, the less force is extracted on the filings; and the closer, the stronger will the force be.

It is clear that the nature of these forces are different. In the case of the interactions of the iron filings and magnets, the magnetic force is determined by the magnetic field. In the case of the Water molecules interaction with the surface of a solid body is electrostatic and also nuclear and electronic forces of the hydration force. In comparison with the magnetic, the Water and solid surface interaction is million times smaller, happening at a few angstroms, and also strongly depending on the solid material, temperature and the chemical composition of Water.

The research conducted at the Institute of Physics of National Academy of Science in Ukraine by Prof. M.V. Kurikom with the participation of one of the co-authors showed that the tap Water passed through Unit VIN2, VIN5 and VIN 5 "Krynchka" with specially selected minerals possesses the structure and biological properties similar to those of *melted* Water. Without minerals no such effect was observed. The enigma of this phenomenon can be explained by three factors:

- The effect of opposing forces on Water molecules and their hydrogen bonds;
- occurrence of long-range interactions;
- occurrence of short-range interactions.

In the units mentioned above Water passes upward between pieces of minerals and experiences two opposite forces. From the bottom up it is effected by hydrostatic pressure and downward by the gravitational force. The interaction of Water and minerals happens in the environment of a slow rise of Water in a tank filled with minerals and the constant effect of the two opposing forces directed at the Water molecules and its hydrogen bonds. In this medium, two kinds of interaction take place, short and long-range ones.

The phenomenon of short-range interaction is connected to the hydration force and its influence on the Water between the minerals. The long-range influences on the Water molecules are exerted by the means of the force field of the mineral itself, created by the vibration of atoms and molecules in the crystal lattice. These are the theoretical explanations of why the Water which passed through Unit VIN – "Krynchka", "Nadia" and "Ldinka" has biologically active properties that are beneficial for all living things.

In the preceding discussions we have often used the expression "specially selected natural minerals". The fact is that not all minerals and rocks taken from earth can have a positive impact on Water and living organisms. It all depends on the geochemical and mineralogical composition as well as the level of man-made pollutants.

The first and very important requirement for the use of minerals in the units mentioned above is the complete absence of harmful and toxic substances such as thallium, beryllium and

mercury. Substances such as selenium are allowed to be present up to 0.01%. Lead, aluminum, arsenic, chromium, strontium are allowed up to 0.05%. To choose which minerals should be participate in the process of creating *melted* Water, namely marble, quartz and its varieties, rhodonite, blue lapis lazuli, moonstone, flint, zeolite, shungite and some others a long study of composition and properties were carried out. Marble's basis is CaCO_3 . Mineral composition of it is dolomite, calcite, quartz, and tridymite. Quartz (SiO_2) is one of the most chemically pure minerals.

The most important isomorphous admixtures are calcium, iron, aluminum, lithium, potassium, sodium and others. Tridymite is SiO_2 . High-temperature polymorphic modification of quartz, in contrast to the one mentioned above, has much more admixtures such as: Al_2O_3 (2.7%), Fe_3O_4 (3.2%), CaO (1%), TiO_2 (0.9%), K_2O and Na_2O (0.8%). The content of H_2O goes up to 1%. Citrine (SiO_2) is a yellow variety of quartz, the color of which is connected to the Al-Li-H centers.

Rhodonite ($\text{CaMn}_4[\text{Si}_5\text{O}_{15}]$) is characterized by the same admixtures as quartz. The main elements of rhodonite are MgO (24%), ZnO (6%) and Al_2O_3 (2%). In some cases a 2.7 % concentration of Se can be found. Because of this rhodonite is carefully checked for selenium.

Blue lapis lazuli ($6\text{Na}[\text{AlSiO}_4] \cdot 2\text{Ca}(\text{SiO}_4, \text{S}, \text{Cl})$) can contain such admixtures as Cl (1.5%), H_2O (2%) and also Ba, Zn, Mn, Mg and others. In Moonstone ($\text{K,Na}[\text{AlSi}_3\text{O}_8]$) the following admixtures were found up to 0.1% Ca, Ba, Fe, Mg, Rb, Ti, B and others.

Flint ($n\text{SiO}_2 \cdot m\text{AlSi}_3\text{O}_8, n>m$) in its carbonated shells contains high amount of lead up to 0.5%. Zeolite is an aluminosilicate form containing Water. The crystal lattice is built from tetrahedral groups of SiO_4 . Within the framework cavities, which are connected by channels, there are large groups of cations and Water molecules. The composition and properties of zeolites vary widely. All zeolites are characterized by reduced hardness (3.5 – 5.5) and low weight (2 – 2.5). They come in color of white, blue, yellow and pink. There are two types of zeolites here: natrolite – $\text{Na}_2\text{Al}_2\text{Si}_3\text{O}_{12} \cdot 2\text{H}_2\text{O}$, habasit – $((\text{CaNa}_2) \text{Al}_2\text{Si}_4\text{O}_{12} \cdot 6\text{H}_2\text{O}, (\text{Ca,K}_2) \text{Al}_8\text{Si}_{10}\text{O}_{32} \cdot 12\text{H}_2\text{O})$.

To this day, the science of interactions of Water with minerals is in its infant stage. Fifteen years ago, a Belarusian scientist A.N. Malyarchikov published data on the positive effect of flint on Water. A little later, we learnt from newspapers about a similar influence of sileks.

N.M. Velikiy, the author of the article above, has long researched the effect of sileks on Water and its properties. In the case of both minerals, flint and sileks, the test was carried out the following way. The minerals were placed in a tank with Water in it and kept there for a week or in some cases for a month. The Water acquired as a result of this procedure had a more pleasant taste, became cleaner and had positive influence on human health. We respect the work of A.N. Malyarchik and N.V. Velikiy, yet according to our data only in some cases does flint and sileks improve the structure of Water and, unfortunately, they do remove any of the mutagenic substances present in Water.

Due to the absorption of clean Water on the surface of minerals, in 20 to 30 minutes Unit "Krynychka" produces Water with a lowered level of deuterium is lowered by 5 – 6%. Therefore, we developed a method of producing a living melted Water in which the content of deuterium and tritium is lowered by 10 – 25%. Developing this method we perfected the technology used in Units "Nadia" and "Ldinka".

To conclude this section, we consider it necessary to express that the secrets of minerals and Water interactions are just beginning to unfold. Each mineral has its own structure and its own effect on Water. Therefore, it is of great difficulty to create a group of minerals interacting with each other and as well with Water only in beneficial ways, and it took us 20 years to do so. In its technological solutions, the new Unit "Krizhinka 2" is unique and truly produces miracle Water of the 21st century which has a lowered level of deuterium and tritium by 20 – 40%! In this book we have described only some aspects of the birth of healthy, healing and biologically active Water with removed heavy isotopes.

We believe that no matter what the time will come and such Water will be present in every house hold providing longevity to everyone.

In 1981, the leading biophysicists of the World gathered in Cambridge for the International Conference on Biophysics of Water. This conference concluded that Water is a fundamental element of life just like proteins, DNA and lipids. The participants of the conference expressed their confidence that the third century of studies on Water will be held under the banner of studying the properties and characteristics of Water in living organisms and its effect on normal and pathological processes. This prediction is gradually coming true. Already in the 60s of the last century, a series of experiments started to accumulate showing the beneficial effect of structuralized Water on human health. We hope that people of the 21st century will be drinking Water created by the technologies described in this book. This technology combines all the newest technological achievements and produces high quality drinking Water out of ordinary polluted Water.

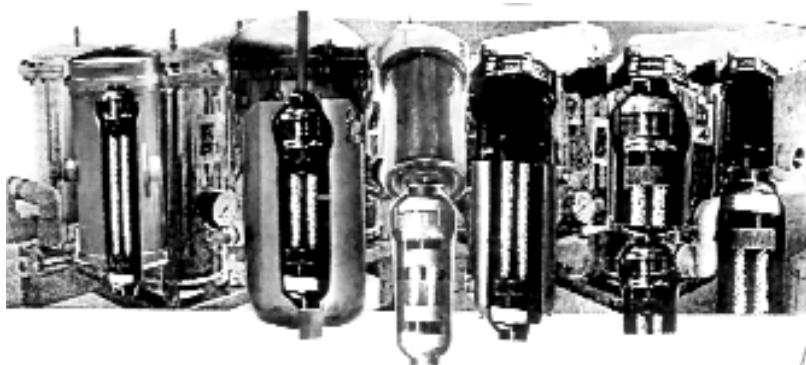
The latest trend in western technologies is the principle of reverse osmosis to clean Water. The polluted Water is pushed under great pressure through membrane filters with pores letting only Water molecules pass through. Nevertheless, along with the dirt and toxins, other useful and necessary for health elements- such as calcium, magnesium, potassium or fluorine- are extracted.

The reverse osmosis system provides crystal-clear Water without harmful particles but also without any useful elements. This Water is suitable only for injection and not for drinking. Mice given such Water died after 2 – 3 months.

Mobile thermo-seperator Unit "Isotope 1"

Unit "Isotope 1" is used to produce clean Water with healing properties. What is unique about it is its size, weight, ease of operation and the ability to produce biologically active Water.

Such a unit provides maximum Water cleansing without any special materials since it uses only eco-friendly natural materials. The presence of a mineralizer enriches your body with minerals through Water. Due to its compactness, this system can be used at home as well as at large industrial complexes.



Pic. 3

INTERPRETATION OF THE NEW PROJECT ON THE BASIC OF MODERN SCIENTIFIC PRINCIPLES

Solving the problem related to the quality of drinking Water is of great importance. This project presentst the new way of Water treatment by Unit "Kryzhinka 1" which has no analogues in the World. The level of technology presented in this unit allow us to produce cleanse Water of all pollutants from salty, underground or surface Water resources. The result is an elite high quality drinking Water with healing properties and a lowered level of tritium and deuterium, which due to its revived biological activity and ordered structure is capable of treating diseases and ensuring the prolongation of life. The main priority of this project is that all of the presented unit's

designs and technologies use highly modern and new methods which have no equivalent in this world.

Experts estimate that this project's implementation, based on a comprehensive solution applied in the presented units and processes, give way to new possibilities in technological and economical prospects in creating big business of the highest quality in the new drinking Water market, which of course will lead to improve the quality of people's life.

This project is classified as an energy-efficient Water treatment equipment of low cost. Project "Kryzhinka 1" presents the corresponding technologies of Water cleansing units for purification of Water and lowering its deuterium and tritium content. Also, the text includes descriptions of parts of the units which were constructed with the aim to providing high quality components of the units.

The main goal of project "Kryzhinka 1" is to ensure that the population of the world gets the access to high quality drinking This project is already part of the "Ukrainian National Program of Drinking Water".

INTRODUCTION TO THE PROBLEM OF THE QUALITY OF DRINKING WATER

For a living organism healthy Water means strength and beauty. This factors are wanted by everyone. Unfortunately, we often have to drink unhealthy and harmful Water. The improvement of Water quality occurs in nature in a natural way. A great part of it is the process of Water getting in contact with rocks and minerals as a result of which Water is turned into a biologically active substance. Therefore, these mineral formations should be used by us to improve the quality of our Water.

As numerous studies of many academic institutions and professionals have shown, the employment of the classical Water treatments (chlorination, ozonation, etc.) is inefficient and does not provide highly active Water beneficial for living organisms. Thus, it cannot be considered healthy.

Some salts contain sodium chloride (soft Water); in others, containing calcium and magnesium (hard Water), salts dominate. Soft Water is easier to desalt, as the required pre-treatment is minimal, compared to the hard Water which requires a considerable amount of removal of hard salts with reversed osmosis. To clean soft Water it is possible to use a considerably easy without the use of chemical reagents.

(Table 6)

***The main types of Water
treatment and expected results are shown***

Treatment type	Achived results	Regulation of technological regimes
Desalination by reverse osmosis	to 40g/l (excretion of salts)	High pressure. 3,0 – 7,0 MPa Mid pressure 1,5 – 3,0 MPa Low pressure 1,0 – 1,5 MPa
Nano-filtration	to 2g/l (excretion of salts)	1,5 – 2,0 MPa
Ultra-filtration	doesn't excret salts	To 0,5 MPa
Micro-filtration	removes mechanical impurities	Less than 0,2 MPa
Electrodialysis	excerts salts	1kg salt 1k.
Evaporation	energy costly	
Cavitaion	removes mechanical impurities	
Electro-plasma method	Removes organic impurities (oxidants)	

TECHNOLOGICAL AND ECONOMICAL CHARACTERISTICS OF THE UNITS

Unit "Kryzhinka 1" meets the following requirements:

- controls the production, regulates each module and step which pre-treats natural Water, as well as micro-extracts heavy isotopes of hydrogen (deuterium and tritium):

- it is capable of working for 30,000 hours before it needs repair or reinstatement;

- usage span of 15 years or more;

- coefficient of technical utilization not less than 0.95;

- all installed modules have been tested and have a direct practical relevance to the Water treatment process as whole;

- the tested modules and the technologies of Water cleansing are classified as energy-efficient Water treatment devices with a low cost of production. They can autonomously and continuously work in cities, big or small in terms of population, providing their drinking Water supply;

- the average rate of investments in the production of high quality drinking Water is 1 – 3 months; in case of removing (micro-extraction) from the cleansed Water heavy isotopes, the rate will be 4 – 6 months.

- revenues of this project are resulted from:

- a) from serial production and sales of the units;

- b) from sales of drinking "light" Water from Unit "Kryzhinka 1"

- It is estimated that through the introduction of this business project the economical efficiency will continue to grow and the net income will multiply since the world demand for drinking Water of high quality will be increasing, as will the new technologies presented in this project.

**PARAMETERS OF WATER CLEANSING
AND MICRO-EXTRACTION OF HEAVY ISOTOPES
OF HYDROGEN (TRITIUM AND DEUTERIUM),
INFORMATION ON HEAVY AND LIGHT WATER**

The knowledge of torsional properties of Water can be very useful in studying the properties of different chemical compounds and the biological activity of its composition. In animal organisms the isotopic composition of Water is close to the composition of rainWater present in their natural habitat. Types of pollution are given in Table 7. For humans, a significant influence of this dependence is made by the fruit and vegetables grown in different climates. Tropical fruit and vegetables growing close to the equator have lower levels of D, O¹⁷ and O¹⁸, and consequently are healthier than those grown in temperate latitudes.

(Table 7)

***The results of pre-treatment of Water
and reduction of deuterium and tritium content***

Major types of pollution	Till filtration, %	After filtration, %
Solid and suspended particles	100	0
Organo-chlorine substances	100	0
Nitrates	100	0
Salts of heavy metals	100	0
Radionuclides	100	0
Bacterial pollution	100	0
Other pollutions	100	0
Stiffness of underground salt Waters	100	with in permissible limits
Reduction of deuterium and tritium	100	1 – 30% or more (regulated)

The isotope ratio of protium to deuterium (H:D) in continental Waters equals 4700:1 and in the seas 6800:1. In ordinary Water, all or the vast majority of D is present in the form of HDO, not in D₂O.

At ordinary temperatures the energy of hydrogen bonds in heavy Water is higher by 340 cal/mol than in protium Water. In most of chemical reaction, with a few exceptions, deuterium reacts more slowly than protium. Slow reactions on the part of heavy isotopes are due to a mass difference of the atoms and molecules to which they belong to, as well as the changes in the activation energy. In comparison to light Water, the viscosity of heavy Water is bigger by 10 – 20% and its density by 10%. Heavy Water is much worse solvent than its light counterpart.

Since Water in a cell acquires the properties of ice and H₂O is much different from D₂O, the effect of deuterium in living cells and its biological reactions are much greater than in Water. In ordinary Water the majority of heavy Water is present in the form of HDO¹⁶ (0.02% of its content). In natural Waters on Earth there are for 10⁶ of H₂O molecules, 320 HDO molecules, 420 H₂O¹⁷ molecules and approximately 2000 H₂O¹⁸ molecules.

Given the universal distribution and initial primordial presence of H and O isotopes in Water, we may assume that maintaining any form of life on Earth of protein-nuclei origin requires the presence of known isotopes of Water, including deuterium and tritium. Many researchers have proclaimed that a low concentration of deuterium and tritium is necessary to maintain a normal life. However no experimental works in this field are known. At the same time, there are many known experimental studies on the damaging, harmful and even lethal properties of Water with a high content of deuterium and tritium.

Water with a high or low content of tritium and deuterium has a strong physiological effect. The reality surpasses all expectations. The effect of light and heavy Water is diverse and less straightforward than it could be expected. Let us look at the biological effects of heavy Water D₂O or DHO.

Initial studies have shown the damaging effect of heavy Water on biological processes even such as the death of living organisms. When deuterium was discovered, biologists wondered what kind of

effect it could have on the body- harmful, helpful or perhaps none at all. One of the first individuals who attempted to answer this question was the American scientist Lewis. He found that heavy Water strongly delay the reproduction of microbes. The splitting of sugar with yeast is 9 times slower in heavy Water. The actions of enzymes are strongly delayed. Another scientist, Richards, discovered that yeast grows much slower in heavy Water.

Pax found that the rate of carbon dioxide emissions during fermentation of glucose under the influence of yeast in pure D_2O is 9 times less than in pure H_2O . Tobacco seeds do not sprout in heavy Water. In case of a 50% content of D_2O , it grows 2 times slower than in ordinary Water. If the seeds are moved from heavy Water to regular one, some of them begin to germinate within a week, although not at a normal pace.

It is interesting to note the fact that while high concentration of heavy Water is deadly to fish, tadpoles and worms, paramecium survived in it for 24 hours. During these studies it was also detected that, given heavy Water, white mice exhibited rising thirst. Studies on the effect of deuterium on the livelihoods of different organisms, like all developing new scientific fields, are accompanied with opposing views. For example, Burns has not agreed with the opinion that deuterium works as a poison. He placed algae in Water with a high content of deuterium and observed the same slow-motion of cells but he made an opposite conclusion. In his opinion, such a behavior demonstrate cell aging of organisms but shows stability of cells. Weber, in their experiments, found that heavy Water in small amounts stimulates the growth and development of certain types of mold. B. Streller explains shortening the lifespan of drosophila by half as the activation of frequent changes of generations and interprets it as rejuvenation! Nowadays, huge successes have been achieved in the study field of physical and chemical processes of life.

On this basis it is essential to find out the biochemical mechanisms of deuterium and its effect on molecular or sub-molecular substances. What are the reactions of a body subjected to deuterium? The possible effect of heavy Water on mammals has not been sufficiently studied. Still, it is known that the rate of the growth of an organism in D_2O is inhibited or in other words aging manifests.

The gradual increase of heavy isotopes (up to 30%) in the drinking Water of dogs, rats and mice did not result in death but in animals becoming sick, anemia occurred and renal functions were disturbed. If deuterium was substituted with more than one third of atoms of protium, all experimental animals suffered irreversible physiological violations and then death. So is deuterium harmful to the cells of living organisms? Yes, it is harmful in large concentrations! What can be said about small levels? We can consider the point of view of V.A. Alexandrov that states that small doses of deuterium have a stabilizing effect on the structure of membranes and cytosol of cells. At the same time, V.M. Muhachev tries to prove that small and medium-sized doses of deuterium change the bonds of hydrogen on a macromolecular level, distort the chemistry of the synthesis of molecules, degrade the transmissions of nervous excitation and inhibit sub-molecular processes. Harmful effects of deuterium and tritium on living beings can be seen clearly in the case of reducing its content in Water. Water with such qualities is a powerful stimulant of processes of life. The usefulness of Water with a low content of heavy isotopes was first discovered by a Tomsk physicist B. N. Rodimov in the so-called fossil Water left from the Mesozoic era in Yakutia. He turned for help to the rector of Tomsk Medical Institute (TMI), I.V. Toroptsev, with the proposal to study the biological and medical effects of such Water.

In the results shown by B.N. Rodimov, compared to the modern ordinary river Water, the content of deuterium was lower by 30 – 35% in the ancient fossil Water. The scientists have first discovered the positive effects of a low content of heavy isotopes of hydrogen from the ancient Yakut ice from Siberian snow.

One of the authors (G.D. Berdyshev) has conducted studies on the effects of ancient relic Water on the aging of human and animal cells. Adding Water enriched with deuterium and tritium to tissues resulted in the acceleration of their aging. If relic Water (structured and with a reduced level of deuterium and tritium by 30 – 35%) was used, it had a rejuvenating effect. Normally cells grow old and die within 7 – 8 days, however, the experimental tissues lived a few days longer.

The studies were continued by a Russian emigrant, V. Strelyaev in Brazil and in Kiev by another group of scientists. Finally, in Kiev, the scientist discovered a new technology of creating Water with ice-like structure and 25 – 41% less deuterium and tritium than normal. This has been achieved by G.D. Bedyshev with J.H Varnavsky, M.V. Kurika, V.I. Shestakova, V.A. Ponomarev and R.E Sova. Unfortunately, as mentioned before, these discoveries have not found their way into the world of Water cleansing technologies or medicine. From the above mentioned facts it can be concluded that the removal of deuterium and tritium from ordinary Water turns it into a biological stimulant. Hence, deuterium is harmful to life regardless of its content.

SUMMARY OF THE PROJECT

This project includes a theoretical part (description of the properties of Water and its isotopes), a methodological part and a scientific part (describing Water structuralization and its impacts on the living organism and its metabolic system). The project shows photographs of the original Units for Water cleansing and also includes descriptions of Water treatment technologies developed by the authors of the project. For the first time in history was a solution found by creative scientists in Ukraine to make such a unit which could transform ordinary tap Water, river or sea Water clean into highly biologically active Water with a lowered level of deuterium and tritium.

The essence of this new discovery gives a real possibility of turning ordinary Water into a kind which is "living" in its structure and has a low content of deuterium and tritium, the so- called "light" Water". This Water can only be compared to Water which people have dreamed about for centuries, them one which would cure diseases and give them everlasting youth. This dream come true was born out of the echoes of old times when fresh Water on Earth was crystal clean and contained little deuterium and tritium.

Revolutionizing provided by this project include the universal installation Unit "Kyzhinka 1" capable of converting all natural Water, including sea Water, into "living" drinking Water. The technologies and processes that form the basis of this project allow constructive planning for making such installations in a unlimited number, with the possibility to clean contaminants in any amount of their concentration. They are simple to manufacture and, not to mention the fact that they are reliable in operation and durable in terms of service. On a technological level they have no equal or analogue in the world.

Biologically living Drinking Water received from Unit "Kryzhinka 1" meets all current regulations of the Directive Council of the European Union 98/83 EU and of the World Health Organization hygiene requirements and standards of drinking Water qualities in such countries as Russia, the USA, Canada, the UK, Germany and Finland.

MODERN PROBLEMS RELATED TO PROVISION OF QUALITY DRINKING WATER

According to the World Health Organization, more than 80% of all human diseases are associated with polluted Water and this problem threatens all countries of the World. It becomes evident as modern state owned Water treatment facilities do not manage to keep up with the pollution and thus provide the consumers with Water with various dissolved acids, oils, detergent and other deadly chemicals which predetermine diseases and premature death.

Thus, with each year there are more hazardous toxic and radioactive substances in the air and Water of our planet. In some parts of the world, the Water problem is already on the verge of disaster. It should be noted that the world market provides thousands of different installations and devices of various designs and modifications for purification of drinking Water flowing from the tap and other Water sources. Judging by the results, it seems that all the designers and manufactures are competing in who would remove

the most dissolved substances from Water creating "crystal" clear Water. As it was mentioned before, this kind of "crystal" clear Water killed the mice in 2 – 3 months. Therefore, this competition in the modern market is absurd. This project offers a solution that does not participate in this competition because it has an absolutely new methodological approach to Water treatment.

PROPERTIES OF WATER ISOTOPICS AND PROBLEMS OF ITS TREATMENT (STRUCTURE OF WATER)

Life is possible without oxygen but without Water there is no life form known to us. If a living organism loses up to 20% of its Water content, it dies. The great French scientist Louis Pasteur said, "Man drink 90% of their diseases." He was referring to the infections that we carry into our body by Water. It can be said that the condition of a human body depends 100% by the state of its Water.

Water is a cause of many phenomena in our World and a very special substance. The dipole moment of Water is the greatest of homologues and changes in the excitation (1,86D). Its anomalies in physical properties are explained by the structure of its molecules and by the characteristics of the intermolecular interactions in its liquid and ice forms. The essence of Water's structure lies in its molecular bonds. The American scientists U. Latimer and U. Rodebush suggested in 1920 that these bonds should be called hydrogen bonds and thus this type of bond has been classified this way in the world of chemical bonding. Without going into details we will only note that the origin of the hydrogen bonds can be traced to its quantum-mechanical interactions of protons and electrons. Three nuclei in the Water molecules form isosceles triangles (Fig: a,b,c).

The electron density distribution in the Water molecule is as shown in Fig. 1 a, c, which creates 4-pole charges: two positive associated with a hydrogen atom and two negative with the electron clouds of electrons of oxygen atoms. The four mentioned charges are at the vertices of the tetrahedron (1 b,d). Thanks to the polarity of Water it has a high dipole moment (1,86 D) and the four poles allow each of the molecules to form hydrogen bonds with neighboring molecules.

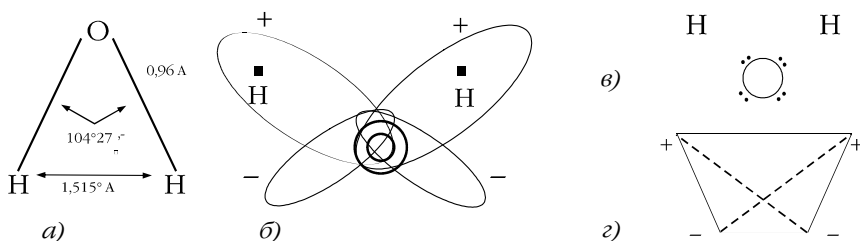


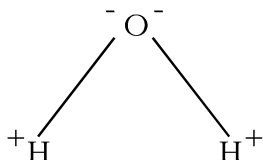
Fig. 4 The structure of Water molecules: a – the geometry of H_2O molecule in vapor; b – orbits of electrons in the molecule; c – electron formula of the molecule; d – the location of the pole of the charges in the H_2O molecule.

The anomalous properties of Water indicate that the molecules H_2O are firmly connected to each other and form a characteristic molecular structure which resists many destructive influences such as thermal, mechanical or electrical.

For this reason for example we must use a lot of thermal energy to turn Water into steam. There is a considerable amount of experimental data on the properties of Water in biological structures and their differences from unbound Water. One of such features is that Water in biological structures is distributed in a very thin layer which is the size of a long hydrogen bond. In such circumstances, Water molecules lose their mobility which they have in large volume. As a result, Water changes its structure in living organisms to an ice-like one. It was found that this Water remains in a liquid form even if a living organism is cooled to -40°C . In this condition only the tightly-bound Water remains in a liquid form (G.P. Gordeev, T. Khaidarov, 1983). If before it was believed by biologists that Water is only a habitat in which biochemical reactions take place, then now they established that it participates in these reactions and in some cases even determines the development of biological processes (N.A. Bubenkov, 1991).

Let us take a look at the properties of single Water molecules separately. It has a structure of an isosceles triangle. The angle between bonds of an oxygen atom and hydrogen atoms is $104,6^\circ$ and the length of a bond is $0,957 \times 10^{-18} \text{cm}$. The molecule of oxygen

has the following quantum structure of electrons: $1s^2 2s^2 2p^4$, and hydrogen has: $1s^1$. In the formation of covalent bonds between atoms of hydrogen and oxygen an electron pair is shifted to an oxygen atom. If bound electrons are asymmetrically located between two atoms, the covalent relationship is transformed into a so-called *polar covalent bond* where the molecule becomes a *dipole*.



As a result, in a Water molecule a proton of hydrogen becomes positively charged (+) and an atom of oxygen having a second layer of paired electrons becomes negative. In other words hydrogen protons establish relations with the electrons of other atoms of oxygen. These bonds are called hydrogen bonds and most often occur in those molecules where hydrogen atoms (H) are bound with O, N or halogens, especially F. The high electro negativity of these elements and formation of positive dipole ends by small atoms of H lead to an extremely high polarity of these connections. At the same time, hydrogen in the form of H is strongly attracted to charged group of other molecules. So with these properties hydrogen bonds have a very strong impact on the physical properties of many substances and, most importantly, on Water.

But let's take a look at one Water molecule presented in model above (Fig 4 a,b) in other words there are two bare protons of hydrogen which revolve around their axis clockwise and create a right torsion field. Consequently, a single Water molecule is a generator of right torsion field. When a large number of H_2O molecules are present in any Water they form hydrogen bonds which determine most the physical and chemical properties of Water and especially the direction of the torsion field. At 20°C Water has the same torsion field as in the human body (50 to 65 units of Voll). Lowering the temperature to 10°C leads to restructurization and as a result the number of hydrogen bonds increase.

If you freeze Water, it loses its structure and turns into a generator of a left torsion field. Although the presence of hydrogen bonds in Water is necessary to know, still it is insufficient to explain all the properties of Water. The most important factor in explaining the basic properties of Water is its liquid structure as an integrated system.

The first single X-ray diffraction analysis showed that in liquid there is a certain regularity of arrangement of the molecules. The first X-ray diffraction study of Water was conducted by W. Rees and J. de Smedt in 1922. It was demonstrated that liquid Water is characterized by an ordered structure of molecules. In the framework of the macroscopic approach the structure of Water differs its dynamic change of molecule positions and the high density, causing a strong intermolecular interaction carried out by the means of hydrogen bonds. Thus, Water is a complex fluid with tetrahedral mesh of molecules linked with hydrogen bonds. As a result of thermal motion of molecules this structure is subjected to spontaneous restructuring.

In the three-dimensional network of hydrogen bonds there are fluctuating micro-volumes of Water molecules present which have relatively low energy of thermal motion and a high degree of structural ordering. These are micro-clusters. At the same time, around the micro-clusters in a micro-volume the H_2O molecules with high thermal motion energy are observed to have a highly disordered structure.

The tetrahedral structure of Water was discovered by Bernal and Fowler. Their classic work on the structure of the Water molecule and its interaction with other molecules and ions of various sorts was published in the August, 1933 issue of "Journal of Chemical Physics". In their work first of all they identified the role of hydrogen bonds in Water as well as types of bonds such as the covalent and hydrogen connections. Covalent bonds are not torn at phase transitions of Water such as vapor – liquid – solid. Only electrolysis heating of Water reveals the covalent bonds. Hydrogen bonds are 24 times weaker than covalent bonds. During ice and snow melting, they are partially preserved in Water but while changing into steam they all become broken. Experimental data and mathematical

calculations finally convinced the British scientists that the Water molecule is "lopsided" and has an "angular" design and that the two hydrogen atoms are shifted to the oxygen atom.

During their work, these scientist developed an idea that Water in a liquid form is a pseudo-crystal. Water in a liquid state has shown characteristics of three different structures (ice, crystals of quartz and the densely packed structure of ordinary Water).

On the basis of the Bernal-Fawler model, the structure of Water is determined by its individual molecules. Water is a delicate pseudo-crystal in which individual tetrahedral molecules of H_2O are connected with hydrogen bonds forming a hexagonal structure. Thus, Bernal and Fowler formulated the first scientific hypothesis on the structure of Water. This theory has served as a foundation for Water structure studies ever since. On the basis of the studies mentioned above, 20 models of Water structure were born which are divided into 5 groups: 1) continuous model , 2) mixed models of structures, 3) model with voids, 4) cluster model, 5) associate model. A continuous model of Water structure means that Water is a single tetrahedral network of hydrogen bonds and if it is bent, melting of ice occurs. A mixed model is the one where there are two or three models mixed in it. The study of this model led to the discovery of the void and cluster structures. The cluster model contains hundreds of molecules of H_2O and thus shimmering clusters continually arise and are destroyed as a result of the fluctuation of local density. The cluster model of H. Frank and V. Vena is a widely known. In this model, liquid Water along with monomer molecules are clusters, swarms of H_2O tied by hydrogen bonds with a lifetime of $10^{-10} - 10^{-11}$ seconds. They are destroyed and created again. Almost all cluster hypothesis is based on the fact that liquid Water consists of a network of 4-fold bounds of H_2O molecules and monomers that are mainly the supplement of the space between clusters. On the surfaces of the cluster there are molecules present with 1, 2 or 3-fold connections. This model is also called a model of "flickering clusters". S. Zenin suggests that clusters and associates are the foundation of the Water's structural memory (long term – stable and short term – labile and unstable).

The continuous model of Water or the homogeneous model states that Water is not a mixed substance but a continuous matter with a complex bent (curved) hydrogen bonds. In contrast to the cluster and mixed models, the continuous model of Water questions the existence of H_2O monomers assuming that the vast majority of molecules are bound by H-bridges or believes that only a small portion of Water has such connections. In the continuous model it is considered that Water structure is heterogen random network of hydrogen bonds and consequently thus one can consider different energy states of H_2O . This model agrees with experimental data of researchers from many countries.

The multi-structured (mixed) model states that Water is composed of various aggregates of molecule of H_2O , HDO , T_2O and others. The basis of the mixed model is presented in K.Z. Trincher (1981) according to which Water is composed of three different types of structures which depend on the temperature. Properties and anomalies of liquid Water according to Tricher can be explained only on the basis of the Water with a high-ordered structure of its H_2O molecules. In a the temperature range of 0°C to 60°C , Water has a multi-component structure which turns it into a "colloid".

The structure of Water undergoes changes in 4 phases when its temperature rises. It experiences sudden changes at 4 points in the relations between its components of the colloids. These temperatures are 15, 30, 45 and 60°C . At 0°C , according to the Trincher model, the structure of Water consists of 4% of relic ice, 5% of pure liquid and 90% of soft ice which resembles a diluted crystal. Thus, in general, at 0°C Water is a quasi-crystalline body with hollow spaces with scattered particles of ice and Water droplets.

Trincher brings to attention that in each three components of Water there is 4th present- the vacuum. In the first phase (between $0 - 15^\circ\text{C}$), relic ice disappears and transforms into a quasi-crystalline component of Water, the so-called K component. In the range of $15 - 30^\circ\text{C}$, the K components are transformed into droplets of liquid which steadily increase in volume. At $30 - 40^\circ\text{C}$, Water becomes an extremely flexible substance which consists of quasi-crystalline and liquid micro-phase placed in a vacuum. Thus, it is not an

accident that the body temperature of a warm-blooded organism is $36 - 42^{\circ}\text{C}$. This enables the maximum possible structural combinations in Water, which provides the highest flexibility of a living matter. At 37.5°C , a significant amount of liquid micro-phases and quasi-crystalline parts align. At this temperature, which corresponds to a body temperature of a healthy person, Water has the highest degree of flexibility and structural heterogeneity. At this state the structure of Water has a maximum memory capability which is based on a virtually infinite number of possible combinations of quasi-crystalline and liquid micro-phases. At this point, the consumption of energy needed to preserve the structure of Water is the lowest.

Morgan and Warren showed that the peculiar structure of Water is alike to that of ice. In Water, as well as in ice, each oxygen atom is surrounded by other atoms of oxygen in a tetrahedron form. At 25°C , each molecule in its frame has one neighbor at a distance of 2.77 Å and three at 2.90 Å. The average distance between the nearest neighbor in Water molecules is larger by about 5.5% than that in ice molecules. The rest of the molecules are located at a distance intermediate between the first and second neighbor distances. The distance between H and O in an H_2O molecule is 4.1 Å. According to modern concepts, such a structure is largely determined by hydrogen bonds which by combining each molecule with its four neighbors form a very delicate "tridymite-like" structure with voids exceed the size of the molecules themselves. The main difference between the structure of a liquid and ice is a more diffuse arrangement of atoms into the lattice and the violation of long-range orders (connections).

Thermal fluctuations lead to bending and breaking of hydrogen bonds. Abandoning the equilibrium positions, molecules fall into an adjacent cavities of the structure and for a while stay there because voids correspond to the relative minimum of potential energy. This leads to an increase in coordination number and formation of defects in the lattice, which causes the abnormal properties of Water. The coordination number of molecules (number of closest neighbors) varies from 4.4 at 1.5°C to 4.9 at 83°C .

According to Denford, Water at 25°C fills half of the void present, however recent research has showed that the proportion is completely negligible. At room temperature Water contains only

0.1– 0.2 % of "free" H_2O . In fact, if you drink melted ice Water of room temperature or colder, practically, there is no difference in structure. At the temperature of 30 – 40° C great changes happen in Water. It has virtually two melting points at 0° C when it turns into the liquid and at 30 – 40° C when, under the influence of intense thermal energy, the crystal structure completely disappears. So if for any reason we would want to destroy Water's structure, we would not need to boil it.

One of the properties of Water which has been neglected the needed attention is the isotopic composition of Water and its effect on the human body.

MAGNETIZATION OF WATER

In the cells of living organisms there are two distinguished types of Water: "un-bound" and "bound". Un-bound Water is what we encounter every day. It is in this kind of Water that cytosol dissolves. "Bound" Water is usually associated with biological molecule of the membranes. In living cells this Water turns into an ice-like structure and so it is no longer dominated by the immutable laws of physics since all of its properties change radically. The dielectric permeability for example is reduced by tenfold and its thermal conductivity increases by several times.

Every living cell has an external and internal biological membranes. It is like a selectively permeable wall enclosing the cell's organelles from damage.

The surface of the membrane of a molecule undergoes structural ordering and consequently creating the so-called clathrate film with Water molecules of strictly oriented dipole moments. In the clathrate film, the processes of exchange between the molecules of Water are carried out with the frequency of ten thousand times per second while the surrounding un-bound Water molecules of H_2O are two times slower.

This leads to the fact that all the impurities dissolved in Water are thermodynamically disadvantageous to be in the clathrate

layers so they prefer to be in the "un-bound" Water. While being associated with the living matter and protecting it, clathrates themselves are protected by an invisible barrier against the damaging effect of "un-bound" Water with dissolved hazardous substances. The thicker and stronger the clathrate layer is, the more stable the thermodynamic conditions and biological functions of individual molecules and cells of the organism are. The basis of all bio-molecules is a hydrogen bond. Szent Gyorgy suggests that hydrogen bonds of Water form the matrix of life by which, in the process of metabolism, protons and electrons move. Hydrogen bonds are not only the matrix of life but also an essential element in the construction of living things. "Bound" Water molecules of H_2O have 4 hydrogen bonds which enable them to provide an optimal rate of migration of protons and electrons, the foundation of metabolism of an organism. When heated, Water hydrogen bonds are broken and release hydrogen protons that generate right torsion field. The biological activity depends on the torsion effect that may lead either to an increase or decrease in the number of hydrogen bonds in Water.

Freshly *melted* Water contains less hydrogen bonds and thus generates more intense right torsion fields and is more easily digested. Such properties result from the fact that at the processes of melting of ice many hydrogen bonds are broken and do not make new ones immediately. The study on the effects of right and left torsion fields began with the processes associated with magnetism.

It has long been noted that the impact on plants, seeds, micro-organisms and other objects of the biota the excretion of magnetic fields have an activating or an inhibitory effect.

It has long been noted that the excretion of magnetic fields has an activating or an inhibitory effect on plants, seeds, micro-organisms and other objects of the biota.

Most often Water was subjected to magnetic force and thus studied. A.E. Akimov (1991) explains the properties of magnets and "magnetized Water" the following way. The torsion field will have a property of any ordering of the spin – nuclear, atomic or molecular. When the magnetization of the ferromagnets occur, an ordering of molecular current happen, which causes the creation of the primary

magnetic field. The ordering of magnetic moments results in the automatic organization of the classic spins generated by the motion of the electrons of the molecular ring currents. The result is a collective torsion field.

Thus, any permanent magnet, in addition to its magnetic field, has a torsion field. The latter circumstance makes it possible to explain the phenomenon known as "Water magnetization" which is the core to the change of the biological activity of Water. From the traditional point of view, to operate a magnet on a distillate which is diamagnetic makes no sense.

However, the effect has been observed repeatedly and may be registered by devices. If we take into account the presence of the magnet's torsion field, the nature of the phenomenon is understandable. The changing of Water properties occur not because of the magnet but due to its torsion field.

In recent years there have been numerous reports of significant changes of properties of technical and distilled Water after it flowed through at a slow speed through magnetic fields with low tension. Unfortunately, these changes are only temporary and disappear after 10 – 25 hours.

It is noted that after such a "magnetic treatment" acceleration process of crystallization of dissolved substances in Water. The phenomenon can be explained by the ordering of spins of hydrogen protons and electrons in oxygen. This magnetization can find wide application in various fields such as Watering plant to improve and accelerate growth and development, preventing scale in steam boilers, improvement of flotation processes and in many other ways.

Since living organisms are composed from 60% to 99.7% of Water, it becomes obvious why they are more sensitive to the effects of torsion fields than other objects of inert matter. Liquid crystal Water as well as biota and especially humans are non-equilibrium quantum systems which are very sensitive to the strong psi-modulated radiation of torsion generators. North pole of the magnet (N) emits right torsion fields that polarize space clockwise affecting all objects, and at the same time this effect endorses their electron structure. The south pole of the magnet (S) has the opposite effect. Living organisms are constantly living under the influence of right

and left torsion fields. Therefore, there are no useful or harmful torsion fields; all depends on the dose, intensity and the time of exposure. Right and left torsion fields can be used as therapeutic agents or as poison. Under the influence of the right torsion field, a spin polarization occurs in Water which leads to the ordering of the spins of the proton, the reduction of its dipole moment and a decrease in hydrogen bonds. In other words, by the release of protons the increase of the right torsion field occurs. Under the influence of the left torsion field, the reverse happens. Water is a weak electrolyte. It is dissociated according to the following equation: $\text{H}_2\text{O} \leftrightarrow \text{H}^+ + \text{OH}^-$. In "living" Water the situation is somewhat different. By electric hydrolysis the Water is separated into two parts. In one part of "living" Water there is more OH^- ions (hydroxyl) and in the other more positively charged atoms (ions) of hydrogen (H^+). The hydroxyl group (OH^-) is the electron donor ($\text{ph} > 7$ sometimes 10 – 13).

These single unpaired electrons on the orbit of the oxygen atom have a right spin therefore create a torsion field. In addition they give away their electrons to the body which enhances oxidative processes that are accompanied by release of energy. Therefore "living" Water has a positive effect on the biological activity of the body. "Dead" Water, on the contrary, has a large number of H^+ ions. It is very reactive and captures electrons from other compounds, which leads to recovery reactions and consequently to a decrease in the energy of the body. This kind of Water's pH level is sometimes equal to 2 – 3 and also has interesting properties when it is used to treat wounds or burns. There is large experimental material on studies of "dead" Water's effect on treatment of various infections, cancer and many other pathological conditions of the body.

The ability to organize the structure of Water in large depends on a surface structure of the macro-molecule and its configuration of atoms. The more it resembles the configuration of ice lattice, the more pronounced ordering and structuralizing takes effect on the surface. This effect depends not only on the shape of macromolecules but also on the location of groups capable of forming (?) hydrogen bonds. If the number of hydrogen bonds which can be formed between the surface of the macro-molecule and the Water

lattice is small, compared to the links between the macromolecules, then that substance is insoluble or vice versa.

Electrolytes are the most direct way which can cause structural changes in cells. For example, the pressure which electrolytes produce gives rise to a compression of the molecule's DNA and as a result that the helix is no longer suited to the structure of the ice lattice and a number of structured Water in the membrane is reduced greatly. The intracellular Water possesses the most stable structure and is consistent with thermodynamic concepts. In the explanation of the crystallization point of view usually the mechanism of *melted* Water is compared to that of the magnetic Water.

The magnetic field strongly modifies the physic-chemical and even the biological properties of Water. The treatment of Water by magnets is an effective way to reduce the amount of scale in kettles and boilers. It visibly activates Water properties and changes its structure. Nevertheless, the magnetic point of view cannot explain the beneficial effects of Water with a low content of deuterium and tritium.

Firstly, we should not forget that all Water on Earth is under a continuous influence of Earth's magnetic fields, however weak it is. Therefore, Water is always to some extent seeking to acquire a stable structure. Thus, the Water structure should be viewed as a kind of an inherent permanent property. Secondly, the Earth's magnetic field is a kind of refrigerator that can hold Water's structure ("frozen") at temperatures even above the upper melting point. The absence of magnetic fields caused by bio-currents circulating are not present in the body. Thirdly, in cells there are always two factors of the structure of Water: the effect of surface molecules and the orientation of Water dipoles in a magnetic field. R. Horn writes "Questions about the structure of liquid Water will remain in the near future the most fundamental and difficult problem of chemical oceanography and molecular biology". The structural organization of Water creates a border for the organism to perceive the extraneous influence or protect itself without harming its own structure.

This ability of Water which provides unity and integrity of the organism is based on the interaction between the external and

intracellular Water. Water is the only substance able to interact with each structure of the body. Hydrophilic substances such as dissolved ions and hydrated molecules (sugar, urea) operate in Water as a structural crusher. Dissolved gases such as O_2 , H_2 , CO_2 or other hydrophobic substances contribute to the structuralization of the dynamic structure of Water. Gas hydrates have a hollow space in the internal surface tension which allows gas molecules exhibit a certain freedom in movement. Restricted oscillations of gas molecules in hollow spaces are to configure a certain kind of vibration and must be consistent with the fluctuation of the fluid. Thus, the change caused by the interactions between the crushers and builders of structures cover the entire system of the basic substance of life of the cells.

WATER STRUCTURAL REGULATION OF THE METABOLIC FUNCTIONS

The structure of the Water and dissolved substance (anions and cations) define and regulate the structure and function of the macromolecules and low molecular bio-regulators, assembly and functions of cell, tissues, organs and generally the whole organism. It defines the migration of protons and electrons in the cells, membrane structures, functions of DNA, RNA, proteins, fertilization, embryonic development, mature functioning of an organism, aging and death.

The results of studies show that there is also a dynamic system of Water structural regulation of the metabolic processes that affects the normal and pathological course. In contrast to species-specific systems, this system of regulation and control is defined as universally existing in plants, micro-organisms, animals and humans.

This believe is embodied by the form of extensive researches conducted in laboratories around the world which prove the existence of Water structure regulatory system in cells and organisms. Direct influence on this regulatory system directed by physicians

can influence the normal and pathological processes in the human body. The structuralization of Water occurs in the organism due to a consequence of thermodynamic disequilibrium in which the living body is present at. To understand the structural features of drinking Water and its relationship to biological properties in the living organism, it is necessary to have a simpler method than an X-ray analysis. There are many different methods for determining the degree of structuralization of Water. Amongst them we note the following:

- the study of dried drop of Water structure – dielectric method;
- study of the absorption of the UV spectrum by Water;
- topological tests; determination of structure of Water by the means of cell membranes
- nuclear magnetic resonance (NMR), the establishment of stable of existence of Water molecules in the given molecular structure; determination of number of hydrogen bonds in each Water molecules. If there are 4 bonds, the molecule is less mobile and more structured than with 1– 2 ties.

The NMR method quantifies the bound Water. By its means, it can be determined how much Water remains stationary on the membrane. In addition, as shown by this method, structured Water has many molecules with long immobile time ($\sim 10^{-5}$ seconds). Unstructured Water has a short immobile time ($10^{-12} - 10^{-11}$ seconds).

One of the new methods of studying the structure of Water in cells is the crystal-optical method. This technique is particularly useful in the study of very dilute aqueous solutions when the concentration of dissolved components is so small that their behavior cannot be observed by the help of the X-ray diffraction method.

Methods for measuring the structure of Water are thermodynamical. Here, the ratio of structuralization is calculated $K_c = C_p/S$, where C_p is heat capacity and S is entropy. If the value of K_c is greater than 1 then the Water is structured if less the Water is disordered. (Table 9).

(Table 9)

The coefficient of structurilization (Cs) of various distilled Waters

Temperature of the Water, °C	Stable Water	Degassed Water	Melted Water	Structuralized degassed Water
0	1,19	1,41	1,29	1,05
10	1.14	1,36	1,22	0,99
20	1,09	1,27	1,16	0,96
30	1,05	1,22	1,12	0,94
40	1,02	1,16	1,08	0,92
50	0,99	1,11	1,04	0,90
60	0,96	1,07	1,00	0,88
80	0,91	1,02	0,95	0,84
100	0,87	0,97	0,91	0,80

Szent Gyorgy was one of the first to discover the important role of Water structure in the regulation of life processes. Basing their study on the motor functions of the body's sub-molecular quantum biology, they designed the following way. Based on the work of Szent Gyorgy and on our own research, we propose a new universal concept of Water structure regulation system that controls all normal and abnormal cell and body activity.

Structured Water in the cell of the body is a very important factor which determines the survival and the ability to develop in an organism. There is no method developed yet to regulate the level of deuterium in an organism, which which is an obstacle on the way to achieve longevity.

RESULTS OF UNITS

In recent years, Ukrainian scientists have constructed special Units which provide healing high quality drinking Water. This gave an opportunity to the regulatory function of Water in an organism and to show the existence of a Water structure regulation of the metabolic processes. The results of certain studies are shown below. Due to that, the structure and chemical composition of Water may change under the influence of both physical and chemical effects. In the research conducted, the Water samples were grouped by the treatment method: *melted*, "shock", magnetized, cathode and anode. Since all of the treatments mentioned above make Water more active in the regulation functions of vital processes, the authors called this Water "activated".

In order to receive "activated" Water, distilled Water was used. Melted Water was obtained by freezing it in a fridge and then defrosting it in room temperature and finally it was given to animals. "Shock" Water was obtained as a result of boiling Water for 30 minutes and then abruptly cooling it to room temperature. Cathode and anode Water was received by electrolysis of distilled Water by the means of tantalum plate electrodes of high frequency at 1200 volts. Magnetic Water was created by passing Water 10 times through a constant magnetic field produced by magnets with an induction field of 0.7 Tesla. Water with a reduced deuterium and tritium level(relic) was received by special technologies described in below and later in the book.

The authors called this Water relic (the Water remaining from the past geological ages) because in those times Water had much less deuterium and tritium according to the hypothesis of B. Mukhacheva. This Water was produced by an exclusive technology of Unit "Krynchka" which not only cleans Water but also structuralizes and mineralizes it.

All types of Water received were examined by relaxometer "Minispieho" 9 operating at the frequency of 0.5 MHz. The time of relaxation of spins of lattices (T1) was measured. The results are presented of "shock", cathode, anode, magnetized and melted Water in Table 10.

(Table 10)

Time of the spin lattice relaxation of a proton $T(1)$ of distilled Water filtered by different means

Type of filtration method	M + m	Number of measurements
Distilled Water (control)	2140,6 + 9,4	20
Shock	2311,9 + 15,7	25
Cathodic	2164,7 + 12,3	20
Anode	2169,9 + 17,9	23
Magnetized	2175,0 + 17,1	25
<i>Melted</i>	2186,5 + 16,2	20

Differences were significant compared with the control ($P < 0.05$). As shown in Table 10, the impact of the methods used such as electrolysis or magnetization did not show any significant alter in Water structure compared to the control distilled Water. "Shock" Water has shown higher structuralization than in the control type. Although this difference is statistically significant, it is of little relevance to the absolute value.

These and other data led the authors to look for other ways to correct the structure of the Water which was gained through the construction of the special unit series "VIN". NMR method was used to determine the structuralization of Water from "Krynychka" and of relict Water. The following spin structure relaxation times were found. The Water from Unit "Krynychka" had a 2368 ± 14.8 ms and the relict Water had a 2478 ± 16.6 ms. Thus, Water from Unit "Krynychky" and relict Water shown by NMR method that they were more structured than all the other Water samples mentioned above.

In Table 11 shows the results of influence of unstructured or lowly structured Water on the growth of 3LL carcinome in mice. The studies were conducted on mice of the same sex, aged 3.5 months. The tested Water was poured into the drinkers from which mice drank randomly. The amount of Water drunk was measured daily and the average volume drank by one mouse was taken into account. These measurements were carried out to identify the preferences of Water.

(Table 11)

The effect of unstructured or low structured Water on the growth of 3LL carcinoma and metastasis in mice

Type of Water	Weight of tumor, g	Average number of metastases	Average volume of metastases, mm³
Control	4,45 + 0,55	1,10 + 0,55	0,75 + 0,03
Melted Water	4,45 + 0,5	6,80 + 2,30*	2,25 + 1,00*
Magnetized	4,90 + 0,65	17,75 + 4,50*	19,10 + 16,20*
Shock	4,80 + 0,45	5,60 + 1,75*	2,15 + 1,60*
Anode	4,60 + 0,45	8,85 + 4,10*	0,75 + 0,30
Cathodic	4,70 + 0,5	3,95 + 1,00	0,90 + 0,20

**Note: in each of variants of experiments 15 mice were observed, the duration of experiments lasted 30 – 31 days.*

From Table 12 it can be seen that the treated Water by different methods does not affect the primary growth of tumors in mice but at the same time all the samples increased the metastatic tumors and melted, magnetized and "shock" Water affected the growth of existing metastases. It was noticed that the effect of magnetized Water was even stronger, so the authors called it also carcinogenic.

We can conclude that all of the above methods of Water treatment destroy its natural structure by which the anticancer disposition of the body is reduced. To assess the impact of high structured Water from Unit "Krynchka" and of relic Water with a low content of deuterium and tritium on the growth of metastasis of tumors in mice, they were given different kinds of Water. The results are presented in Table 12.

(Table 12)

The effect of Water from Unit "Krynchka" and of relic Water on the growth of 3LL carcinoma and metastases in mice

Type of Water	Tumor mass, g (M + m)	Inhibition of primary tumor growth, %	Number of metastases M+m	Inhibition of metastases growth, %
Control	4,93 + 0,38	0	20,0 + 0,7*	0
Relic	3,50 + 0,36	29	15,0 + 1,8*	25
Water from "Krynchka"	3,10 + 0,12	37,1	12,0 + 1,9*	40

There are 15 mice were in each group. The experiment lasted for 28 days

As shown in Table 12, the structured Water from Unit "Krynchka" and relic Water showed a striking anti-tumor effect. The greatest anti-tumor effect was that of the relic Water. The use of it on animals delayed the growth of carcinoma by 37.1%. The Water from Unit "Krynchka" showed a delay of 29%. Also Water from Unit "Krynchka" reduced the average number of metastases by 25% and relic Water reduced it by 40%. Both types of Water retard the growth of primary tumor growth and the metastasis (average size of metastases) were less than half compared to the control group.

Significantly fewer animals died in the groups drinking relic and Water from Unit "Krynychka". Out of the 15 animals which participated in 4- week experiments only one died in the structured Water groups and 4 times as much died in the control group. Animals drinking Water from Unit "Krynychka" and relic Water were characterized by greater weight than the control ones, which indicates the ability of structured Water to reduce the effect of tumor toxicity.

Similarly to the above-described experiments, the results of further experiment conducted on different organisms, ranging from bacteria to humans, were the same. So it may be concluded that structured Water with a low content of deuterium and tritium has positive effects on the health of living organisms.

The experiment conducted on mice also examined the impact of Water from Unit "Krynychka" and relic Water on the performance of peripheral blood (red blood cells, white blood cells in 1mm³ blood, hemoglobin and white blood formula). The recordings were made in the beginning of the experiment and in the second and fourth week. All hematological research was carried out by conventional methods (gemometer of Sali, chamber of Goryaev, Romanovsky's Giemsa).

If Water with broken structure oppressed the processes of hematipoiesis, eritropoz leucopoiesis, then the structuralized Water and relic Water always improved the results of peripheral blood.

In this research also a polar-graphic method was used to determine tissue oxygen tension in vivo with an open platinum electrode in the study respiratory and oxidation of liver mitochondria of mice and tissues which are in a chronic hypoxia state. In these experiments structured Water from Unit "Krynychka" and relic Water improved breathing and oxidation of tissues. Water with unordered structure worsened the situation.

The researches conducted by the authors on tissue and cells of humans and animals already in 1964 **showed the rejuvenating effect of Water with a low content of deuterium and tritium.** Adding heavy isotopes of hydrogen to Water showed a dramatic acceleration of cell aging.

Here are some details of the results received by using structured Water in medical establishments. In OAO "Kvazar" (Kiev) for 3 months medical surveillance was conducted on 30 volunteer patients suffering from chronic diseases of internal organs. This treatment included the consumption of biologically active Water (BAW) received from Unit VIN 5 "Krynchka". BAW was given to patients in the form of medical tea "Youth" prepared according to a special recipe.

The results of treatment were evaluated in the first group (18 people) on the basis of clinical data. The second group's (12 people) results were clinical laboratory results (qualitative and quantitative study of peripheral blood, saliva, urine). The data showed a tendency to normalization of white blood cells and lymphocytes in patient's blood. As a result of treatments by clinical data in both groups it was noted that the health of the patients improved (decrease of headaches and pain in the region of the heart, increase of mental and physical endurance, normalization of sleep. etc.).

It should be noted that if a number of large granule cells (LGL) were absent in the subject before the treatment, then after the level of LGL in individual patients increased to 1%. The appearance of LGL in the peripheral blood confirms the stimulatory effect of biologically active Water.

Studies of saliva have shown that if prior to the treatment the saliva of patients was characterized by loss of its right shape and in some cases a complete distortion of its form, after the consumption of structured Water, the crystallization of saliva completely restored.

As a result of treatment with Water from Unit VIN5 "Krynchka", patients with diseases of internal organs showed a marked improvement in their general condition in both groups. According to the laboratory results their bodies' resistance and restoration processes increased. These and other researches, experiments and clinical data show that a new era of Water biology and medicine is beginning when healing with Water will achieve astonishing effects on the human body.

WATER – CONTROLLED LONGEVITY AND IMMORTAL TECHNOLOGIES

Scientist found through extensive research that in the process of aging, from birth to death, the level of Water found in cells decreases. The Water content of a newborn boy is 86.8% of his body weight, a teenager's – 71%, a man at the age of 25 has 61% and an old man has only 49.8%. (Y.I. Moskalev 1985, V.V. Volkov, 2002). V.Volkov, for example, believes that the loss of Water in the organism causes a loss of life force because a body lacks hydrogen protons.

Protons are needed for hydrogen production (synthesis) in the mitochondria of the cell adenosine triphosphate (ATP) with its important energy-rich chemical bonds (connections between atoms of phosphorus and oxygen) which contain multi-dimensional energy (from 11 to 13 kcal/mol) which is send to the mitochondrial membrane skeleton throughout electrical networks of cells in which the protein molecule enzymes are hanging on.

The 1978 Noble Prize winner, P. Mitchell, argues that for ATP synthesis in the mitochondria to occur, a large number of hydrogen protons are needed. As it is well known to biochemists, the source of protons in the body's cells are hydrogen protons of Water molecules. That is why the reduction of the amount of Water in cells of older people leads to a reduction of one the major energy sources.

Cell membranes, all internal threads (protein molecules), forming the inner frame and hanging on them the molecule enzyme proteins in the living cells have multidimensional, stable non-equilibrium excited state radiating a multi-polar spectrum which is recorded by such devices as "white noise".

The task of the authors of this project is to record this information, the "white noise" of young organisms and then broadcast it in the body of elderly people whose radiation of this specter is much smaller. To do this, you need to create new instruments that could save and transfer such information of the multi-dimensional bio-information. Further, it is necessary that this new information

would be coherently emitted by elderly organisms so it could activate their state to the same extent.

In short it need to be transferred the young organisms' information taken from the cell membrane in the form of "white noise" and be put into other organisms in order to activate the cells. Previously we did not know what information is needed and from where is should be saved, but now we realize that we must look search it in the complex membranes and the whole frame of the cells with a built-in protein molecule enzymes which together form a "double electrical layer". In addition we are aware of the fact that this layer is not double but "multi-dimensional electric layer" which creates a multi-polar radiation and consequently an anthropogenic field!

In the future it is necessary to operate in this field if we want to record a young organism's information and transfer it to the mature. This would create a basis of implementation of technologies of immortality. The value of Water and its secrets cannot be figured out without understanding the evolution of energy without which the flow of biochemical and other vital processes into living organisms never occurs.

Additionally, we must indicate that Water is the source of the following:

- hydrogen and oxygen atoms (H, O);
- protons and electrons (p, e);
- positively and negatively charge ions (H^+ and $-OH$), in other words Water is a source of various types of energy.

Water forms different types of bonds in the biological systems and when they break, energy is produced (hydrogen bond: 8 – 25 kJ/mol, chemical bond brake $H - OH$ 350 kJ/mol). Water is a universal solvent in which biochemical processes take place in all living cells. Water is also a versatile building block of the construction of any biological objects. In any metabolism of Water in a living organism, the released energy is partly used for heating, partly keep the atoms of the protein molecules in a multi-dimensional, steady non-equilibrium excited state. This is the main function and mystery of Water!

Thus, the living is animated and located in a multi-dimensional excited state. Water at the same time makes for the habitat of the human body as well as a universal solvent, construction material and a versatile energy source.

Water has an utmost importance for the whole biota and human beings. The human body's vitality and viability depends on its Water content. Water is being studied everywhere by various scientists from all kinds of sources.

Water can be obtained in or by:

- rivers, lakes, springs;
- boiling, boiling it twice, distilling;
- *melted*, "living", "dead";
- pyramidal (A. Hunger, ordered to a left spin);
- super-ionized Water (SIW);
- π – Water (which has probably a right spin);
- un-bound Water in the body (molecules of unstructured

Water which have no connections with proteins, DNA etc);

– Water connected with proteins and as well as with DNA (A-form – up to 40%, B-form – more than 40%). All Water in the cells of a human body is "living" since it is in a non-multi-dimensional equilibrium steady excited state. Its atoms are excited by the two protons of hydrogen, the nucleus of the oxygen atoms and the electrons of the quantum levels forming a chemical bond between an oxygen atom and atoms of hydrogen. This Water has high reactivity and is involved in all reactions of the bio-synthesis, providing the body with thermal energy, construction materials, bio-energy and keeping a stable structure of protein molecules, cell membranes and the whole cell skeleton.

These characteristics of Water are confirmed by the level of the so-called oxidative recovery potential (ORP) which is also called Redox potential. Normally the ORP in a human body ranges from – 70 to – 300 MV or more. The higher the ORP, the more intense the reactions of the bio-synthesis, and therefore all the other processes in the body. Table 13 and 14 shows that many indicators of morphological changes in the ontogeny of an organism are correlated with the quantitative content of Water in cells.

The biological activity of Water is evidently dependent on the internal state of the molecules (in other words how strongly the Water is ionized and its ORP level). See results in Table 13 and 14.

(Table 13)

The relationship between morphological and functional changes in the body and the Water content in the cells

Researched indicators	Age			Notes
	From 1 to 10	25	From 60 to 80	
Degree of excited state of atoms (from 300mV to 5 mV)	300	250	200	
ORB of the healthy organism, mV	– 300	– 300	– 285; –250;	ORB meter
ORB of fresh urine	– 90	– (80... 50)	– (40... 30)	ORB meter
ORB of Water	+(30...79) in mountains	+(350...450) in bottles	+(400...450) after filtration	ORB meter
SCS – level	50.000	40.000	10.000	Bio-photon scanner
Water content in the organism, %	87...71	61	50	
Speed of reactions of bio-synthesis/min	50.000	40.000	30.000	
Speed of ADT synthesis (from 1.0 to 0 units)	0,95	0,85	0,6	
Speed of SC synthesis	1CK/10 ⁴	1CK/3·10 ⁵	1CK/10 ⁶	
Entropy	0,2 – 0,25	0,3 – 0,35	0,55 – 0,75	
Negentropy	0,8 – 0,75	0,7 – 0,65	0,45 – 0,25	

Notes:

SCS – the level of carotenoid antioxidants in the skin;

ADT – adenosine triphosphate;

SC – stem cells.

(Table 14)

***The interdependence between the pH, redox potential
and multi-dimensional stable non-equilibrium excited state
of atoms of Water in the human body***

Types of Water and liquid bio-substances	pH	ORP, mV	Excited state
Tap Water $H_2O \approx HO^- \leftrightarrow {}^+H$	7,0	+ (100...200)	Excitement of electrons, protons and the nucleus of the atom not observed
Living Water $H_2O = HO^-$ ionized	>7,0 could reach 12-13	– (150...400)	Excitement of 2 valence electrons of oxygen p^2 , 1 electron S^1 of hydrogen
Dead Water $H_2O = {}^+H$	<7,0 could reach 2-3	+ (600...1000)	Excitement of hydrogen proton
Human urine $H_2O \approx HO^-$	>7,0	– (90...30)	Excitement off all electrons on all quantum levels $1S^2$, $2S^2$ and $2p^4$, nucleus of the hydrogen atom and 1 proton of hydrogen
Human Blood $H_2O \approx HO^-$	7,24...7,4	– (200...300)	Same as above
Super-ionized Water $H_2O \approx HO^-$	>7,0	– (600...1000)	All electron of every quantum level and nuclei of atoms are stably excited
Water with BAD "Energy of Life" $H_2O \approx HO^-$	>7,0	– (270...330)	All electron of every quantum level and nuclei of atoms are excited
Water with BAD "Coral Calcium" $H_2O \approx HO^-$	>7,0	– (160...170)	Same
Freshly boiled Water (warm) $H_2O \approx HO^- \leftrightarrow {}^+H$	\approx 7,0	+ (115...160)	Non of the elements are excited

The material presented in the last two tables gives cause for reflection and comparison, and suggests that in humans almost all processes are interconnected and connected to Water, but if Water molecules are not in a multi-dimensional non-equilibrium stable excited state like the protein atom's molecules, we cannot speak about life. The role of Water in living systems cannot be overestimated! **Water is life.**

Another research of deserving our attention is that of L. Hayflick. It has already received a great international response. The American biochemist argued that the aging of a human body is determined mainly by the aging of non-dividing cells – nerves, muscles etc. He came to the conclusion that the program which limits the possible duration of life lies in the division of cells.

L. Hayflick showed that lung fibroblasts divide about 50 – 60 times and after that they stop dividing. Also, he noticed that cells divided less frequently in older organism than in young ones. It was determined that cells possess a memory of prospects of its division. The only cells which are observed to divide endlessly are reborn abnormal cancer cells.

These conclusions of Hayflick provoked a heated debate in the academic world amongst both, his followers and opponents. The main objection was that the results of his experiment on the cells were not conducted in real conditions which are present in the body. The Water medium in the body decisively transforms the functional properties of cells which were not taken in the experiment above.

British scientists led by L. Thraco brilliantly demonstrated the above contradiction. Inserting cells from one body to another which showed a higher number of divisions which the "limit of Hayflick" showed.

But let us return to the work of L. Hayflick. We must recall that in his outstanding research the environment was not taken into account. Given the exceptional importance of the environment for the occurrence of any biological processes, this error of Hayflick gives us the basis for an orientation of a new scientific method. Water structure regulation through which a positive impact can be achieved by the structure and the memory of Water on genetic

memory of cells and the whole organism. Given the important role of the Water structure regulation of life processes in humans and animals, our authors have studied the influence of Water on aging of eukaryotic organisms. The subjects of studies were *drosophila melanogaster*. Their genetic apparatus is similar to the human genome. Due to the simplicity of its content and the small size of the drosophila, it is a generally accepted model for research in many fields of biology and medicine all over the world. Because of the similarity to the genetic apparatus of human cells, many conclusions can be drawn from results on drosophilas. Therefore, the experiments conducted by the authors on drosophilas to examine the geroprotective (rejuvenating), radioprotective and antimutagenic effect of relic Water and Water from Unit VIN5 "Krynychka", which have a biological significance, could be considered on a human being. The results show that relic Water and Water from Unit "Krynychka" contributed to an average 30% increase in the life of drosophilas, compared to the control group which drank distilled Water.

According to preliminary data of Prof.F.L. Konev, Water from Unit "Krynychka" and relic Water have antioxidant properties due to their high content of hydrogen bonds. It is because of the hydrogen bonds that those two types of Water are able to quench free radical, including the main super-oxide radicals damaging our genes and which reduce the life span of an organism. American scientist R. Cutler has found a direct correlation between the level of activity of enzymes that destroy super-oxide radicals and the duration of life of different animals. **Thus, structured Water having a high content of hydrogen bonds which quench a variety of oxidants has a strong antimutagenic effect.** The discovery of this fundamental fact explains many of the positive properties of Water of Unit "Krynychka" and relic Water. On the basis of all the studies carried out in the field of drinking Water, this project offers a rejuvenation of a whole body by changing the contaminated Water of a body to Water with ice-like structure and with a low content of deuterium and tritium.

Our project is developed with the view to ensuring the longevity of a person up to 120 years and so by all means it can be called "Water, health and longevity".

The essence of this project is to replace the contaminated Water in the body with biologically active Water. The calculations of the authors show that if all the polluted Water in the body is to be changed to pure Water the life expectancy of a human being will increase by 1.5 or 2 fold.

Also the radioprotective level of the two types of Water was tested on drosophilas. First, the larvas were exposed to gamma-rays of 5 Gray dose (0.8 Gray/min). The larval development was studied in comparative results by using structuralized Water and distilled Water in a control group. The results show that Water from Unit "Krynchka" mitigated radiation damage of the drosophilas, reduced the percentage of dominant lethal mutations and increased the survival rate. The radioprotective properties of relic and Water from "Krynchka" are shown in Table 15.

(Tabel 15)

Radioprotective effects of different Water samples

Water	Average life spam, days	Statistic score, P
Distilled Water	28,5 ± 3,8	–
Water from Unit "Krynchka"	34,7 ± 2,4	< 0,05
Relic Water	42,4 ± 4,1	< 0,05

Radioprotective properties of relic and Water from "Krynchka" with the respect to the DNA cleaved by endonucleases obtained from the patients were determined by Prof N.E. Hursin. Thus from the results above we may again conclude Water from Units "Krynchka" and "Nadia" give us healing Water – Water of the future.

Over time improved analogues of the Units such as "Nadia" will be as coomon as refrigerators in the kitchen and will provide healthy drinking Water to the inhabitants of Earth. Then, the dream

of Hippocrates and sages of East will come true , and accordingly, the main remedy will be Water and food.

The era of Water therapy is starting and even cancer will be treated with relic Water with a low content of deuterium and tritium. According to the created theory, this is the kind of Water we should consume. It should be clean, free not only of all harmful micro-organisms, toxic and noxious pollutants but also of the structure memory of them. The Water content of heavy and radioactive isotopes must be drastically reduced. It should have a structure of melted ice and antioxidant properties. It should be noted that all the numerous experiments and clinical results prove the existence of "living" Water produced by the described Unit.

Last but not least, fullerene must be mentioned and its possibility of using it as an anti-aging substance. Fullerenes have a strong impact on the structure of Water solutions. So far we have not mentioned that carbon and fullerenes are not soluble in Water. Russian scientists in their first experiments with fullerenes used extracts of shungite suggesting that the therapeutic properties of shungite's source a result of to its content of molecular carbon in the form of fullerene. Today, this extract is sold in a so-called cosmetic Water "Rosa" in Russia.

To test their hypothesis, the scientists came in direct contact with their American colleagues who had already received chemically pure fullerene by artificial means in an electric arc but had not yet realized its important biological role. The American scientists presented to their colleagues one gram of fullerene- enough for five months of research.

Academic Andrievsky said, "We were not able to obtain fullerene but we have already had experience with shungite which contained fullerenes. We were able to work with other antioxidants.. In order to dissolve fullerene in Water it was necessary to extract a certain amount of energy to tear the carbon "balls" from each other and insert Water molecules into their multi-layer hydrate shell ,preventing them to stick together again. We managed to do it and even patented it."

The solutions of synthetic fullerene in Water are called "solutions of Andrievsky'. When fullerene is dissolved, there are about 10 molecular layers around Water molecules. This Water or hydrate shell

of fullerenes constitute the so-called structured Water. The diameter of the hydration shells are ten times the diameter of the carbon spheres, so the volume and the mass of fullerene structured Water will exceed that of the mass and size of fullerene by thousand times.

Thus, fullerene takes effect in microdoses. It structurizes Water and makes it become by thousand fold larger in mass, which means that a very small amount of fullerene is able to structurazlize a large volume. The properties of structured Water surrounded by fullene molecules are significantly different than in its unstructured state. For example, this Water does not freeze at 0°C but at -2°C .

Similar results were obtained in the studies of Water with surrounding bio-molecules. It turned out that the same kind of a Water shell with a low melting temperature is formed around DNA molecules in solution of enzymes. For example, it was calculated that one unit of DNA's double helix has 24 molecules of structured Water. In the immediate vicinity of the fullerene molecule there are 22 molecules of Water. Research concluded that the fullerene structured Water stabilizes and protects the surrounding bio-molecules and the state of Water shell of biomolecules. Their active centers largely depend on the physiological state of the cell structure.

More than 20 years ago, Japanese scientists discovered that Water in healthy cells of the newborns have a special structure consisting of clusters which have a quadratic form. With aging and diseases the structure of the cells is destroyed. Therefore, our health depends on the info-clusteral structure of the Water in the cells in the cellular space and vascular beds.

According to the Noble Prize winner of 1992 Dr. A. Kerrela, Water in our body is the prerequisite for eternal life of cells. The higher the quality of geometrical structurilization, the better metabolic functions are carried out throughout the body. This "crystal" cell Water is structured "living" Water. This Water keeps our body alive. DR. Alexis Kerrel believes that "the process of degeneration is subjected to the liquids which cells float in". Since Water is capable of recording, storing and transmitting information, depending on the information recorded it will change its medical properties. This emphasizes the importance of Water structured by fullerene. Another incredible thing that was discovered was the fact that the

DNA bio-protein molecules increased their stability in high temperature. Why is this incredible?

What is death by burning? It is primarily a irreversible destruction of secondary protein structures where proteins play no other role than that of a source of energy. Previously it was thought that the denaturation temperature of proteins were the same. It turned out that this is not true. It became apparent that it was the stable Water structure formed by fullerenes that was the key. In the presence of fullerenes, protein denaturation temperature is increased by $5 - 10^{\circ}\text{C}$, which by biological standards is a lot. For example, the normal body temperature is 36.6°C and the close to death is 42°C , so adding $5 - 10$ degrees to this limit, till the denaturation of proteins occur, seems incomprehensible.

The studies of fullerene effects on the work of enzymes show that they increase not only their denaturation temperature at which they cease to work, but also their activity in elevated temperatures. As it is commonly known, the velocity curve of biochemical reactions continuously increase with temperature followed by a decline of functions ending in a denaturation of the enzymes and the loss of their activity. When researchers heated the solutions in which the enzymes were supposed to be destroyed, they noticed that they started to work even harder. Experiments show that the organisms increases their thermal stability with the use of fullerene. Today, the first stage of research has ended and the next step is to implement it in the field of medicine. Many researchers are working on the antioxidant fullerene properties to create the "immortality pill" which in their assumptions is to appear in $5 - 10$ years.

Nowadays, it is possible to use a natural resource shungite and shungite Water which naturally contains fullerenes. For many centuries, mankind have consumed fullerene located in mud and spring Water. Water coming out of shungite strata have healing properties.

The beneficial effects of shungite on humans are extremely diverse and no wonder. Shungite is a unique natural product, environmentally clean with more than 20 useful for the human micro-elements with sorption, catalytic, antibacterial properties and anti-inflammatory, analgesic effect also heal skin and joint diseases. It is

used in forms of tinctures, pastes, creams, massagers, bath mineral mixtures, negative radiation converters and cladding panels. Carbon-shungite mixtures are used for skin care of all types. Shungite cleanses and softens the skin giving it elasticity and promotes skin rejuvenation. It is also used as a bactericidal agent in infected wound, abrasions, swellings, burn pains and insect bites.

Enjoying great popularity today is the mineralized by shungite cosmetic Water "Rosa" in which the content of fullerene is up to several milligrams per liter. Water "Rosa" has received positive feedback from the Institute of Beauty in St.Petersburg. People who regularly drink shungite, relic, high structurelized Water will have excellent health, high creative potential; athletes drinking this Water will be outstanding in their achievements.

REALIZATION OF THE PROJECT

To solve the above described problems of drinking Water and its storage, it is necessary to base in such complex project technologies of Water treatment that allow a constructive planning for manufacturing Water of high quality which could be applied to any Water resource present on Earth.

These technologies of Water treatment must be mobile, versatile, occupying minimum space, simple to manufacture, reliable in operation, durable in terms of service and capable of cleaning Water effectively.

Taking into account all the previously mentioned problems of drinking Water, we provide the solution with a universal Unit capable of converting all natural Water, including marine, in to "living" drinking Water.

Last of all, it should be noted that if a person drinks such PURE Water with stable isotopes, they will be protected starting from cellular level, which will result in the increased durability of the complex mechanism of the human body. This is the kind of Water which is drunk in regions inhabited by people with high life expectancy like in Yakutia, mountain regions of Altai, the Caucasus and other regions.

All rights
for production of all technology connected
to the equipment producing low deuterium and tritium Water
with negative ORP are owned by
TEG (Telme European Group)

www.telmeeuropiangroup.com
info@telmeeuropiangroup.com





Gennadiy Berdeshev
Nikolai Deshko
Geza Nagy
Vitalij Demura

ECOLOGY OF WATER

Бердышев Геннадий Дмитриевич
Демура Виталий Владимирович
Дешко Николай Акимович
Надь Гейза Гейзович

“Экология воды”

Редактор Павленко В.Ю.
Комп'ютерна верстка Павленко В.А.
Коректор Іщенко І.І.
Дизайн: Павленко В.Ю., Павленко В.А.

Підписано до друку 03.05.12 р. Ганітура Гарамонд. Папір офсетний. Друк офсетний.
Формат 60х90/16. Наклад 300 пр. Зам. №12-000

СПД В.Павленко. 02068 м. Київ, а/с №2 Павленко В.А.
Свідोцтво суб'єкта видавничої справи ДК №3337 від 15.12.2008 р.

Видруковано з готового оригінал-макета у ТОВ “Друкарня “Бізнесполіграф”
Київ, вул. Віскозна, 8.